THE MARINE RECORD.

DEVOTED TO COMMERCE, ENGINEERING AND SCIENCE.

$2.00 PER YEAR. ESTABLISHED 1878. 10c. SINGLE COPY.

VOL. XVIII. CLEVELAND, OHIO, AUGUST 29, 1895. NO. 35

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and im rove the character of the service rendered to the public.

PRESIDENT.

WILLIAM LIVINGSTONE, - - Detroit, Mich.

SECRETARY.

CHARLES H. KEEP, - - - Buffalo, N. Y.

TREASURER.

GEORGE P. MCKAY, - - Cleveland, O.

COUNSEL.

HARVEY D. GOULDER, - - Cleveland. O.

VICE PRESIDENTS.

J. C. GILCHRIST,	Cleveland.	THOS. CRANAGE,	Bay City.
A. A. PARKER,	Detroit.	W. S. BRAINARD,	Toledo.
S. D. CALDWELL,	Buffalo.	E. D. CARTER,	Erie.
WILEY M. EGAN,	Chicago.	J. C. RICKETSON,	Milwaukee.
F. N. LASALLE,	Duluth.	F. J. FIRTH,	Philadelphia.

EXECUTIVE AND FINANCE COMMITTEE.

H. M. Hanna,,	Cleveland, Ohio.	D. C. Whitney,	Detroit, Mich
H. H. Brown,	Cleveland, Ohio.	W. P. Henry,	Buffalo, N. Y.
James Corrigan,	Cleveland, Ohio.	J. J. H. Brown,	Buffa o, N. Y.
H. A. Hawgood,	Cleveland, Ohio.	David Van e,	Milwaukee, Wis.
Thomas Wilson,	Cleveland, Ohio.	R. P. Fitzgerald,	Milwaukee, Wis.
M. A. Bradley,	Cleveland, Ohio.	John G. Keith,	Chicago, Ill.
J. C. Gilchrist,	Cleveland, Ohio.	J. S. Dunham,	Chicago, Iil.
E. M. Peck,	Detroit, Mich.		

COMMITTEE ON AIDS TO NAVIGATION:

W. C. Richardson,	Cleveland, Ohio.	W. M. Egan,	Chicago, Ill.
George P. McKay,	Cleveland, Ohio.	Frank Owen,	Ogdensburg, N. Y.
H. G. Dalton,	Cleveland, Ohio.	A. W. Colton,	Toledo, Ohio.
B. L. Pennington,	Cleveland, Ohio.	James Davidson,	Bay City, Mich.
Thomas Wilson,	Cleveland, Ohio.	Alvin Neal,	Port Huron, Mich.
John W. Moore,	Cleveland, Ohio.	M. M. Drake,	Buffalo, N. Y.
W. S. Mack,	Cleveland, Ohio.	W. Bullard,	Buffalo, N. Y.
David C. Carter,	Detroit, Mich.		

COMMITTEE ON LEGISLATION:

S. D. Caldwell,	Buffalo, N. Y.	James Corrigan,	Cleveland, Ohio.
James Ash,	Buffalo, N. Y.	Wm. Livingstone,	Detroit, Mich.
E. T. Evans,	Buffalo, N. Y.	James Millen,	Detroit, Mich.
P. P. Miller,	Buffalo, N. Y.	Jesse Spaulding,	Chicago, Ill.
John Gordon,	Buffalo, N. Y.	C. A. Eddy,	Bay City, Mich.
W. Bullard,	Buffalo, N. Y.	Alex. McDougall,	Duluth, Minn.
Edward Smith,	Buffalo, N. Y.	F. J. Firth,	Philadelphia, Pa.
H. M. Hanna,	Cleveland, Ohio.		

CANADA'S FIRST ALUMINUM CANOE.

The first aluminum canoe made in Canada was completed a few days ago at the workshops of George R. Prowse, St. James street, Montreal. This craft is built nearly on the lines of the Peterboro canoes, and her dimensions are as follows: Length 16 feet, beam 30 inches, depth 12 inches, weight 55 pounds. Of the total weight 35 pounds are aluminum and 20 pounds wood. The aluminum, which is No. 18 w. g., was brought in sheets from Germany, and over 3,000 aluminum rivets were used in her fastenings. A cement of white lead was used for the seams, but it was believed she would have been water-tight without this. There is a water-tight compartment in the bow and one in the stern, so that she would float well in case of capsizing. The cost is about $100. She has a very smart look, and acquitted herself admirably at the races at Valois, near Montreal, on the 3d inst. She was entered in the four-paddle canoe contest with four cedar canoes. She led from the start, and was the only canoe of the five which did not swamp in the choppy sea which prevailed that day.

HURRAH FOR THE ST. LOUIS.

The splendid success of the American Liner St. Louis in accomplishing an average speed of 22.3 knots over a four hours' course in the English channel on Tuesday, shows that she is going to be one of the great ships of the age, says the Marine Journal. The trial being for her acceptance as an auxiliary cruiser under the new postal subsidy law of the United States, was made under supervision of an American government board and was very thorough. The only requirement in speed was that the ship sustain a rate of twenty knots, and there were not a few critics who hesitated to believe that she could do that. Having fully demonstrated her ability in this line, however, under the unpropitious conditions of being the first transatlantic passenger steamship produced from an American yard since steel shipbuilding has come into vogue, it is not at all unlikely that she may, under improved circumstances in the future, even cut a pace for the great Cunarders, the proudest boast of the English builders to date, and establish a new record across the ocean. It is well known that the St. Louis has been suffering under a defect in regard to her draft, which will be easily remedied by her builders as soon as the ship gets time to have it made, and it is therefore probable that, profiting by their experience with her, the Cramps will produce in her sister ship, the St. Paul, a craft that will prove the queen of the ocean and in every way equal to the task of carrying the stars and stripes once more into the very van of the world's merchant marine. Hurrah for the St. Louis and her owners and builders and the flag she flies! Just wait and see what fresh laurels they will add to the record of the American ship!

ZONES OF INAUDIBILITY.

German experiments have confirmed the fact that there is a zone around fog signals within which the sound cannot be heard, a fact first demonstrated in the United States. A vessel steamed with the wind straight for the lightship from a distance of 4½ sea miles; at 2¾ miles the sound was heard faintly, and suddenly increased in loudness at 2½ miles, retaining the same intensity up to 2 miles. Then it grew fainter; from 1¾ to 1½ it could scarcely be heard, but then becme so loud that it seemed near at hand. At half a mile the sound disappeared entirely and was heard again at a quarter of a mile, increasing up to the lightship. The same phenomenon was observed in going away from the lightship and on returning to it the second time. That is, at a quarter of a mile from the signal for a breadth of a quarter of a mile, the sound was inaudible, and again at 1½ miles for the same distance it could not be heard.

NOTICE.

If W. H. Leland, engineer on one of the lake steamers, will communicate with THE MARINE RECORD, he will learn something of importance.

All charts of all portions of the lakes supplied promptly by THE MARINE RECORD, No. 144 Superior St.

NEWS OF THE NAVY.

An important reform has just been effected in the French Navy. A special department is to be founded at the Ministry of Marine for drawing up plans of new ships, and of seeing that they are properly carried out in the state and private dockyards. A decree to this effect has been promulgated.

It has finally been decided to build four of the six new gunboats authorized by the last Congress with full sails and single screws, and an order to that effect has been issued. They will be known as Gunboats Nos. 10, 11, 12 and 13, and the two twin screw ships, with only fore-and-aft sails, as Gunboats Nos. 14 and 15.

At the Brooklyn, N. Y., navy yard, the U. S. S. Columbia was still in the dry-dock on Monday having her hull painted and the defects in her keel made good. Work was also being done on her rudder. As soon as she can be got ready, the Columbia will join the North Atlantic squadron, but this it is thought will hardly be possible until the first week in September.

The United Service Gazette says: "Attention is being just now very much attracted to the United States Navy. The performance of the Columbia in surpassing her sister ship, the New York, by accomplishing a passage across the Atlantic has proved her, by the time occupied, the actual distance covered, and the average speed maintained, to be the fastest fighting vessel in the world. Eleven minutes under a week is thought to be very remarkable time for a warship, averaging as she did 18.41 knots during her journey to New York. There is an uneasy feeling that until the Powerful and Terrible are finished, we have no cruiser which could maintain the like speed for such a continuous run." La Yacht says: "Cette traversee, bien que tres remarquable, a ete notablement plus longue que celle des paquebots a marche rapide qui desservent les lignes transatlantiques."

The naval estimates now being prepared at the Navy Department will show a notable decrease in the amount necessary for continuing work on the new navy. Last year Congress appropriated about $13,000,000 in all for payments on new ships, including armor and armament. It was the heaviest appropriation made since the work of rehabilitating the navy first commenced. This was due to the fact that the bulk of the obligations with ship contractors and armor manufacturers fell due during the current year. The estimates for the coming year on account of the new navy will be at least $5,000,000 less than the current appropriation. It is not the intention of the Department, however, to urge a cessation of work on the new navy. On the contrary, it is said that Secretary Herbert will ask for at least one or two more battleships and a number of torpedo boats, and the estimates which will soon go to the Treasury will include an amount sufficient to begin work on proposed new ships.

THE average depth of the Pacific ocean is 2,126 fathoms; Atlantic, 2,013; Indian, 1,829; Antarctic, 1,500; Arctic, 845; Mediterranean, 738; Irish, 120; English Channel, 55; Adriatic, 23; Baltic, 22.

NEWS AROUND THE LAKES.

CLEVELAND.

The wrecked steamer St. Magnus (Br.), which was overturned in such a peculiar manner in the river early this summer, got away Tuesday evening in tow of the tug Joe Harris, which will take her as far as the Welland Canal. Her owner, Mr. R. O. McKay, of Hamilton, Ont., says he will rebuild her into a bulk freighter. She will be in commission again in about a month.

The new coal car tipple which has been erected on the Nypano docks near Columbus street bridge for loading coal into cars, will be ready for trial in a few days.

The State of New York, of the Cleveland & Buffalo Line, has just been fitted with a twin electric light plant, of the direct connected type. It was put in by the Fisher Co., of Detroit. Gen. Mgr. Newman received from the Detroit Dry-Dock Co., Wednesday, finely finished models of the hulls of the State of Ohio and State of New York. They have been given a place in his private office, just above the model of the new boat now building, which looks as large as both of the smaller models placed together. The new steamer will have 619 berths, or 219 more than any other steamer on the lakes. The model of her hull calls out much warm admiration.

While Gen. Supt. S. I. Kimball, of the Life-Saving Service, did little more on his recent visit to Cleveland, than look over the ground, so as to be able to act intelligently when the time for a change should come, it is known, through advices from Washington, that he contemplates building a new station at this port at the earliest opportunity, which will not occur, however, this season. He is awaiting the action of the War Department, in deciding what shall be done in the way of replacing the west pier, which is fast decaying, and on which the station is now located Col. Smith has been casting about for some time to choose a spot suitable for erecting light-keepers' dwellings, so that the old light-house property on Water street may be vacated and sold. His action will affect the location of the life-saving station, and could no suitable place on shore be secured, it may be that a crib large enough for both the light-keepers' dwellings and for the life-saving station will be erected in the outer harbor. The life-saving station is located too far in-shore at present. It is sadly in need of repairs, but no money will be expended upon it, as it is proposed to vacate it early next spring. Mrs. Motley, wife of Keeper Charles Motley, has been seriously ill for several days, and is still confined to her room.

The sounding board of the Cleveland fog whistle is a marked success. It deadens the sound shoreward till it is no longer irritating, and what is more important, greatly intensifies the sound lakeward.

The Standard Contracting Co. has received orders to begin work at once on the second Pennsylvania dock in the outer harbor. This dock will be located 150 feet east of the Cuddy-Mullen dock, and will have a length of 610 feet. From the end of the dock an extension will be built along the harbor line for 50 feet. This dock will be built only ten feet wide this season, but a track will be laid on it, and the space inside will be made a dumping ground during the winter. The dock will be finished when the filling is completed.

ASHTABULA HARBOR.

Special Correspondence to The Marine Record.

The repairs to the Youghiogheny coal dock, which have consumed six months, are now nearly completed. All the bents are in position, and the work of placing stringers and flagging is well advanced. About 150 piles are being driven as a part of the foundation for the new car dump machine.

Samuel Hopkins of Philadelphia, fell into the hold of the Choctaw, on which he was a deck hand, last Saturday evening. He caught a stanchion and broke his fall, but injured his hip, broke his jawbone, and sustained other injuries which will detain him at the Marine Hospital some little time.

Two more of the King Portable Hoists have been ordered by M. A. Hanna & Co., for their dock here. The eight already erected are proving very successful and it is desired to have enough legs to equip the largest lake vessels. The machines can raise and lower the bucket at any point without stopping its forward or backward motion, and permit of the ore being piled higher beneath the trestles than any other machine.

Work has commenced upon the excavation of the river here to the 20-foot depth. The river is 17 feet deep, with a bed of soft shale, which is easily ripped up by steel fingers attached to the dredge bucket. It is rock dredging however, and 97c per cubic yard is being paid, about half the price paid fot dredging hard rock.

LORAIN.

Special Correspondence to The Marine Record.

Another crib for the west pier has been placed in position.

The new range light structure is about completed.

The C. L. & W. ore trestle, which gave way and let down a couple of cars week before last is again in order.

The American Eagle is preparing to enter the Put-in-Bay-Cleveland fruit trade. The R. G. Stewart of the Cleveland-Port Stanley line will give excursions out of Lorain for the remainder of the season.

The Cleveland, Lorain & Wheeling railroad now has facilities for loading upon boats 5,000 tons per day.

The tracks for the Brown hoists are being extended southward.

The tug O. J. True will soon receive repairs to her machinery.

The Johnson Co. is preparing to build a new set of ore hoists near the site of the proposed blast furnace.

The tug Cascade is being fitted with new furnace grates.

Dredge No. 6 is again at work in the channel opposite the C. L. & W. hoists.

CONNEAUT.

Special Correspondence to The Marine Record.

There was a strike among the ore handlers of about a day last week. The men demanded that they be allowed to see the manifests of all ships, so they could figure their own accounts; that certain men who had been discharged for refusing to work overtime be reinstated; that the assistant superintendent be not allowed to run a gang, that they be paid 17½ cents an hour overtime and on Sunday; that gang foremen receive the same pay for loading from the dock that the men receive (they had been getting 1 cent per ton more); and that the gang bosses pull the string at one hatch. All the demands except the last were conceded, but the men refused at first to return to work. Finally they resumed, however, the gang bosses having hired men to pull the signal strings. The demands were only conceded, however, to keep the men at work until new men could be imported from Fairport and Ashtabula, and the ex-strikers are being discharged rapidly this week.

When the Centurion was unloading here, Capt. Millen received a telegraphic notice from Mr. Mark Hopkins, principal owner of the boat, that Mr. Hopkins' steam-yacht Bonita would give the Centurion a race from Port Huron to Sand Beach, a distance of 50 miles.

The Shenango No. 1 carried the employes of the Record Manufacturing Co. and 450 other citizens, including Conneaut's leading business men, over to Port Dover, Ont., last Thursday. All were given the freedom of the port and enjoyed themselves heartily. A similar excursion from Port Dover is likely to visit Conneaut on Labor Day.

The tug Day will go to Buffalo soon, to be overhauled and receive new steering gear.

TOLEDO.

Special Correspondence to The Marine Record.

The tug Jessie P. Logie has changed hands, the consideration being $2,000. Nagel & Hall will manage her and Capt. Beighton will be succeded by Capt. Paige.

The steamer Douglass will take care of the excursion business of the City of Toledo, while the latter receives repairs to the damages sustained in collision with the schooner Downing last Saturday evening, when several Bucyrus people were hurt.

The Rooney dredge has completed the river work between the Cherry street and Lake Shore bridges.

At 8 o'clock last Thursday evening the steamer Idlewild and schooner Ferret collided opposite the Toledo crib light, the schooner sinking almost immediately. The schooner was outward bound, and had 100 tons of coal for Mt. Clemens. Capt. M. J. Young was at the wheel at the time and was so badly hurt as to be still a patient at the hospital. The schooner was cut almost in two amidships. The Massasoit struck the wreck Monday and knocked the jibboom out of her.

It is stated that a new steel sidewheel steamer, with a capacity for 800 people, will be built or purchased for the Toledo-Monroe route next season.

ALPENA.

Special Correspondence to The Marine Record.

Capt. R. C. Smith, of the schooner Granger, of Chicago, was in port last week after a load of cedar. Captain Smith is a whole souled, hale and hearty old sea dog, and in spite of his sixty-eight years is still one of the ablest masters on the lakes. The captain has a record which can scarcely be equaled. He has been a sailer for 51 years, 44 years of that time being master of a vessel, and has never had a serious accident. He has never lost a ship, never beached a ship, and has had but two accidents worthy of mention. These were the dismasting of the schooner Minnie Mueller on Lake Michigan in 1873, and a similar accident to the S. B. Pomeroy on Lake Huron in 1884. Capt. Smith never lost but one man, and that was due to his own carelessness, as he walked overboard on a still night from the deck of a vessel loaded with cedar. The vessel was hove to and a boat lowered, but the night was dark and the man was never seen again.

Captain Smith has followed the lakes every year since 1844, and has commanded almost every one of the big schooners in the old days. The captain built two ships for himself, but both were lost while under command of other men, one being his brother.

Capt. Smith likes a sailing ship better than a steamer, and predicts that many big schooners will yet be built on the lakes, and that they will pay their owners better than do the steamers. The captain admits that he is getting a little along in years, but expects to command a schooner for many years to come.

CHICAGO.

Special Correspondence to The Marine Record.

Capt Harry Channon arrived at New York from England on the steamship City of Paris last Saturday. He is expected home next Saturday.

The barge George B. Owen is unloading 1,500 tons of Black Horse coal at O. S. Richardson Fueling Co.'s Market street dock.

Palmer, Cook & Calbick chartered the Toltec, oats to Buffalo at 1⅝c; Miztec, wheat to Buffalo at 2c; New Orleans, corn to Buffalo at 1¾c; Zapotec, flaxseed to Buffalo at 2c. Capt. John Prindiville chartered the Emily B. Maxwell, corn to Port Huron, at 1⅛c; John Duncan, flaxseed to Buffalo, at 2c. W. M. Egan chartered the Robert Mills, R. P. Fitzgerald and Omaha, corn to Buffalo at 1¾c, and the P. D. Armour and John Plankinton, wheat to Buffalo at 2c. J. G. Keith & Co. chartered the Neosho, F. Schlesinger, Majestic and Selwyn Eddy, corn to Buffalo at 1¾c; Sachem and George Sturges, corn to Port Huron at 1¼c; Mary A. McGregor, for dry lumber, Washburn to Chicago, at $2.25. J. J. Rardon & Co. chartered the Hesper for wheat to Buffalo; the Hattie Wells, corn to Walkerville at 1½; and the Caledonia and City of London, corn to Buffalo at 1c.

Marine men have entered a strong protest against the construction of a new bridge at North Halstead street with a center pier in the middie of the river. The plans of the city engineer for the bridge are now before Major W. L. Marshall, United States Engineer in charge of Chicago harbor, and it is to Major Marshall that the marine men are directing their efforts. The main point of the objection is that there should be no more center piers placed in the narrower parts of Chicago River. Instead, they want a folding or lift bridge, which will leave the center of the river open for navigation.

Action against the bridge has been taken by the Lake Line Agents' Association and the Vessel Owners' and Masters' Association. The Lake Carriers' Association, representing, with these, 90 per cent of all the vessels on the lakes, joined in the protest with a telegram from Cleveland, signed by Vice President Gilchrist. Petitions which were being generally signed were also in circulation among marine men, and will be presented to Major Marshall. Major Marshall will report within a week to the War Department.

The tug Frank Edward was sold by the Graham & Morton Transportation Co., to Millhagen Bros., of St. Joseph, for $3,000, and will be taken to Racine to engage in the fishing business. The Graham & Morton Co. will build a new tug.

MILWAUKEE.

Special Correspondence to The Marine Record.

The whaleback steamer Christopher Columbus entered the straight cut at too high a speed a few days ago, and the tug Welcome was crowded so closely to the north pier that she could not take a line. The Columbus ran into the Benjamin coal dock about three feet, leaving the imprint of her bow. She was not damaged.

For the week ending last Saturday twenty-one steamers arrived at Milwaukee with coal cargoes aggregating 34,515 tons. Lake shipments for the week were as follows: Flour, 54,148 bbls; wheat, 500 bus; oats, 95,200 bus; rye. 10,000 bus.

About 1,700 feet of the river front at the foot of Menominee Street, where were located the freight houses of the Union and Anchor lines, was destroyed by fire last Thursday afternoon. The loss is estimated at more than $250,000. The damages to the freight of the steamboat companies was covered by blanket insurance policies. The buildings were owned by the Chicago, Milwaukee & St. Paul Railroad Co. About 48 cars and their contents were also destroyed and a number of buildings in the vicinity were scorched. The fire started beneath the floor of one of the freight houses, but the cause is unknown. Arrangements are being made to rebuild at once.

The offices of the Union Steamboat Co. have been established in the building occupied by the O'Connor Dock Co. and in the rear of the Western Line's warehouse on Reed street. Union Line boats will land at the Lehigh Valley dock.

A committee of stockholders and creditors of the Bucyrus Steam Shovel and Dredge Co. have submitted a re-organization plan, which provides for issues of preferred stock and bonds, which are to be distributed among the creditors as well as among the stockholders, who will receive the full face of their former holdings. The creditors will be classified, some being paid in cash, some in bonds, others in preferred and the remainder in common stock. The capital stock will be increased from $150,000 to $250,000.

SANDUSKY.

Special Correspondence to The Marine Record.

The steamer City of Glasgow loaded 2,000 tons of coal at the Short Line docks last Friday in 8½ hours.

The Kelley's Island locomotive, which ran off the end of a trestle and took a leap of 40 feet into Lake Erie with a train of loaded cars, has been rebuilt at the Lima railroad shops, and was taken from Sandusky to the Island Monday by the steamer Margaret Olwill.

The steamer Westcott brought in a load of lumber from Manistique a few days ago for the Bennett Lumber Co., which is repairing the old Ayers dock.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

The West Duluth Lime Co.'s dredge is about to begin work on a slip for the West Duluth blast furnace. Docks for coal, coke and limestone will be constructed, and material which formerly came by rail will be brought in by water. The furnace has been idle two years, but will soon resume.

The low water at the Sault prevented the new steamer Penobscot from breaking the wheat cargo this week. She was able to load only 114,300 bushels on 14 feet 2 inches. The Selwyn Eddy's wheat cargo record was 121,000 bushels, but she drew 14 feet 11 inches of water; so the Penobscot has relatively reduced the Eddy's record, as she could have taken 125,000 bushels on the same draft. The Zenith City will be up here in a few weeks, however, to set the pattern for a big load.

The new men on the Superior coal dock, whom the company refused to discharge at the end of the strike are rapidly dropping out. The ex-strikers intermingled the new men in gangs of their own men, and by putting in their best licks at work to which they have been long accustomed, have speedily broken down the new men, who found it impossible to keep pace.

The steamer Victory arrived here last week with 3,741 tons and 600 pounds of 1½ inch anthracite coal for the Ohio Coal Co. This breaks the coal record by nearly 300 tons, the biggest cargo heretofore being 3,500 tons brought here by the S. S. Curry.

The Pioneer iron mine, adjoining the Chandler, is shipping 400 to 500 tons of ore per day to Two Harbors. The ore is practically the same grade as the Chandler.

Duluth and Superior lumber handlers have been granted an increase in wages from 35 to 45 cents per hour.

John Sanborn, of the Minnesota Supreme Court, has decided in favor of the American Steel Barge Co. to the effect that a judgment growing out of a lien of the company on $500,000 worth of stock held by the Merritts, is a bar to the suits of the Merritts to recover. The barge company held the Merritts' notes and collateral to the extent of $500,000. The company entered suit against the Merritts in the New York courts and obtained judgment for non-payment. The Merritts then endeavored to bring the case into the Minnesota courts and the decision of Judge Sanborn was on the question of the hearing in that state. The Steel Barge Co. has scored a clean victory over the Merritts in this matter.

Elevator No. 3, of the Globe system, is about to be raised eight inches and given a stone foundation. A new engine and boiler house will be built outside the elevator. Flax, barley and smut machinery will also be put in.

Capt. Alex. McDougall does not commit himself to any great extent as to the intentions of the American Steel Barge Co., for next winter, but says the shipyard will be busy.

For some weeks surveyors have been working in the vicinity of West Duluth and Spirit Lake, and from information secured there is little doubt that a new line of railroad to the Mesaba range is being surveyed.

SAULT STE. MARIE.

Special Correspondence to The Marine Record.

Contrary to a general impression which seems to have gotten abroad, there is little or no danger that vessels nearing the new Canadian lock from above will be in danger of injuring their bilges on the rocky sides. In fact the sides of the approach are of timber crib to within one or two feet of the surface, and on top of this the stone work is laid with an incline away from the water. The timber crib sides under water project outward two feet, so there is little chance of the vessel striking the stonework under any circumstances. The date of opening the canal is still uncertain. It is believed that the Canadian government will not accept the canal until the cribwork of the approaches is entirely completed. Several of the officials and employes have resigned because they are dissatisfied with the pay.

Capt. W. W. McNaughton has sold his yacht Santa Maria to ex-Gov. Hoard, Col. Jesse Stone, Hon George C. Greene, Hon. H. D. Fisher, prominent Wisconsin citizens, and Chase S. Osborn. All belong to the Espanore Island Club.

Near the third red stake this side of the dike there is a submerged stake which was placed there when the new channel was being dredged out. It is in a dangerous position for the smaller boats, which run close to the present mark. It is said that a large number of the old stakes are submerged in different places near the channel. If so they should be removed.

PORT HURON.

Special Correspondence to The Marine Record.

Ed. J. Kendall and Capt. A. J. Bonnah have purchased the tug W. W. Richardson from H. C. Strong, of Cleveland, and will station her at Port Huron for harbor towing. Ed. will act as agent. She made her first tow Saturday and works very satisfactorily.

The tug Roy is at work with wrecker Johnson, trying to locate the schooner John Shaw, which foundered off Sturgeon Point last fall.

Mr. J. E. Botsford and family are getting ready to go to New York in their yacht Vulcan. They expect to be gone about four weeks.

Arrangements have been made with Gen. Manager Gordon, of the Northern Steamship Co. to have the North West stop at this city when the regular passenger season is over. The North West will make a special trip from Buffalo to Duluth and return that will take ten days, and will stop at this port for two or three hours to give the people of this city and Sarnia an opportunity to look this grand passenger ship over. Mr. Gordon says that the North West will be here about September 17.

A late editon of the Port Huron Herald gave special attention to the leading commercial and industrial interests of the city, including Muir Bros., the coal, wood and brick dealers; David McMorran & Co., coal dealers, shipchandlers and wholesale grocers; J. E. Miller & Son, proprietors of the Tunnel Coal Docks, and wholesale and retail coal dealers; the Michigan Flouring Mills; Port Huron Machinery and Supply Depot; Tunnel City Flouring Mills; Union Dock & Storage Co.; Grand Trunk Elevator Co., and the Excelsior Iron & Brass Foundry. The issue also contains a number of handsome illustrations, picturing localities inside and outside the city.

The dredge at work at the foot of Lake Huron is making some great finds. A few days ago she brought up a piece of oak timber 38 feet long and 16 inches square, in an excellent state of preservation. A short time ago the dredge brought up an iron rudder post weighing several hundred pounds.

FLOTSAM AND JETSAM.

The Flora and Atlantic are in ordinary at Detroit.

At 8 a. m. Thursday August 29, the stage of water at the Sault was 14 feet 3 inches.

An incendiary tried unsuccessfully to burn the tug Pup at Saugatuck Sunday night.

The tug Golden has been laid up at Menominee with a defective boiler, and will not be out again this season.

Capt, Joe Doville's schooner P. S. Marsh will carry blasting powder from Cleveland to Portage at $3.50 per ton.

A large number of lake yachtsman are arranging to go to New York next month to witness the international races.

About 650 feet of the piling for the revetment work at Sturgeon Bay Canal has been finished, and the rest is being pushed along at a rapid rate.

Nothing is being done as yet toward beginning work on the projected coast light at the Sturgeon Bay Ship Canal. The structure is to cost $20,000.

The Dominion government has been asked to put in range lights at Port Dover, the Canadian terminus of the Shenango car ferry line, and will probably make the improvement soon.

The body of an unknown sailor was found on Bear's Island, Lake Michigan, last Friday, with $48 on his person and a plain gold ring on his finger with "Din Caroline" engraved inside.

The question whether barge 117 and steamer Alva shall be repaired under their own policies, or under the collision liability clause, will have to be decided in the United States Court next winter.

Capt. James Murray, a well-known vessel owner and contractor died at his home in St. Catherines, Ont., Tuesday, aged 63 years. He was best known as a heavy contractor, having built a part of the Welland canal, besides other works along the lakes.

The steamer R. J. Hackett was the first steamer on the lakes to carry iron ore, and she took her first load in 1870, towing as a consort the Forest City, also ore-laden. The experiment was so successful that the Forest City was given steam power and each was furnished with a consort, which they are towing to this day.—Detroit Free Press.

Three engineers from the Dominion department of public works are at Amherstburg and will make a survey of the river in front of the town and as far up the river as the foot of Bois Blanc Island. It is also understood that they will prepare an estimate as to the cost of removing the New York and Boston shoals just below the town, which have caused so much trouble to boats in the past. A large boulder has been removed by the dredge Ontario from the shoal on the east side of the river, over which there was but 13½ feet of water.

Notice is hereby given that a reef with 16 feet least water has been discovered 20 miles W. ½ N. from Beaver Island light station, Michigan. A 25 foot spar buoy, red and black, horizontal stripes, has been established near its N. W. extremity in 12 feet of water, on the following bearings: South Fox Island light S. S. E. ½ E. 16¾ miles; Beaver Island light, E. ½ S. 20 miles; S. E. point of Gull Island, N. E. 10 miles. The shoal will be known as Boulder Reef.

NOTICE TO MARINERS.

ECORSE RANGE LIGHTS.

Notice is given by order of the Light-House Board that, on or about September 15, 1895, a fixed red light of the sixth order will be established in the structure recently erected on the west side of the Detroit River, near Ecorse, Michigan, on what is known as Ecorse marsh. The structure is a square white pyramidal tower, surmounted by an octagonal lantern, with copper roof and surrounded by a balcony with black hand rail. The focal plane of the light is 28 feet above the mean level of the river. The tower stands on a platform supported on piles, in 3½ feet of water, about 150 feet, on the range line, from the contour of 18 feet depth in the river.

On the same date a fixed red light of the sixth order will be established in the structure recently erected in the marsh about 550 feet N. 1° 42′ W. (N. ⅛ W.) from the preceding, and about 160 feet from the shore line. The structure is a square, white pyramidal tower surmounted by an octagonal lantern, with copper roof and surrounded by a balcony with black hand rail. The focal plane of the light is 45 feet above the mean level of the river. The tower stands on a platform supported on piles in 2½ feet of water.

Each light will illuminate 135° of the horizon lying between S. 69° 12′ E. (ESE. ¼ E.) and S. 65° 48′ W. (SW. by W. ¾ W.) or 67½° to the eastward and 67½° to the westward of the range line. These lights will form a range for running the main channel of Detroit river, intersecting the Mamajuda Range at a point about 950 feet to the eastward of Grassy Island Light (about 350 feet to the eastward of the curve of 18 feet depth abreast of Grassy Island Light)

NEW SHOAL IN DETROIT RIVER.

A shoal was struck by the steamer Briton several days ago about 6, 400 feet south of the Bois Blanc Island light on the range of the Detroit River light, and just opposite the upper red can buoy. It is 450 feet west of the center of the Amherstburg ranges. The shoal extends 160 feet east and west, and 300 feet north and south. Capt. George P. McKay has marked the shoal with a black spar buoy, which is in 22 feet of water on the eastern edge of it. He also placed a float with two white horizontal lights four feet apart at the entrance to the Detroit River, east of the Bois Blanc Island light.

DON'T RUN DOWN SIGNALS.

The following letter has been received by the Cleveland Branch Hydrographic Office:

U. S. S. MICHIGAN, PUT-IN-BAY, August 25, 1895.

SIR: It being necessary for the survey of Pelee Passage to establish one or more water signals some distance to the southeast of Dummy Light, will you kindly notify masters of vessels to be on the lookout so as to avoid running them down. They are about 20 feet high, painted black and pyramidal in form. Please extend this information as far as possible to other ports on south shore of Lake Erie. Respectfully,

B. L. RICHARDS,
Lieut. Com. U. S. N., Commanding.

NOTES FOR NAVIGATORS.

The demolished range light at Lorain is being repaired, and a temporary light is being displayed meanwhile.

Leo Bernard has placed his red light on Vital Shoals on a larger float and erected it to a height of 12 feet. A box four feet square has been placed on the scow and painted red.

H. W. Ferris, keeper of the life-saving station at Huron City, warns vesselmen that three of the balls in the bell buoy off Point aux Barques light are fouled and only one ball can strike the bell, the sound being heard only occasionally and at a short distance.

The keeper of the lights Nos. 1 to 6, Southeast Bend, St. Clair River, reports that a scow in tow of the tug Genevieve ran into and carried away the cluster piles from which light No. 6 on the west bank of the St. Clair is shown. While repairs are being made a temporary light, fixed white, will be exhibited.

Capt. Joseph Rouleau has erected a set of target ranges 12 feet square at Hay Point, at the foot of Big Mud Lake and has placed a pair of range lights on them. Boats bound up in making the turn at the lower end of Mud Lake with these targets or lights in range will bring them directly up to the turning point can buoy at the upper end of the lake. Round Island section for down-bound boats and Hay Point ranges for those bound up.

PROPOSED NEW YORK-PHILADELPHIA CANAL.

An official report has been transmitted to the Councils of the city of Philadelphia by the commission appointed in July, 1894, to investigate the feasibility of constructing a ship canal across the state of New Jersey and connecting the cities of Philadelphia and New York. The present report is upon the progress made, and embodies the official reports of Mr. N. H. Hutton, consulting engineer, and of Mr. L. M. Haupt, M. Am. Soc. Civil Engineers, engineer in charge, says the engineering Record.

The necessary surveys have been made to determine the most feasible route for a canal; the underlying soil has been investigated, and the general technical results have been recorded in the reports referred to. Two routes present themselves, both including the use of 27 miles of the Delaware river, between Philadelphia and Bordentown, and from 7 to 15 miles of the Raritan river and bay, according to the depth adopted for the canal. Both routes leave the Delaware river near Bordentown, and ascend by locks to the plateau, which ranges in elevation from 60 to 100 ft. above tide, and extends across the state of New Jersey on the line surveyed. The first line would then connect with the Delaware & Raritan canal, a few miles east of Trenton, and follow the canal to near Kingston; thence easterly by way of Monmouth Junction to Lawrence Brook and the Raritan river The serious objections to this line are the necessity for twice crossing the main line of the Pennsylvania R. R., and the unfavorable nature of the ground between the canal and Monmouth Junction. These difficulties were considered so serious by the engineers that though the route was surveyed, no estimates of cost were made.

The other route, from the same beginning, follows a line nearly parallel to the Pennsylvania R. R., and south of it to a point near Monmouth Junction; then deflects easterly to avoid a trap-dyke, and passes down Lawrence Brook to Parson's Dam, and finally strikes the Raritan river at Sayresville. By this more favorable route the canal proper would be 31 4-10 miles long. The total distance from Philadelphia to the ocean, near Sandy Hook, would be 78 miles, and to the Battery in New York, 92 miles. By way of Cape May and the ocean these distances would be 260 and 274 miles respectively.

Estimates are submitted for two sizes of canal prism. One is 96 ft. wide at bottom, 150 ft. wide at top and 20 ft. deep at the center, figured for vessels not exceeding 18 ft. in draft. The other is 100 ft. wide at the bottom, 180 ft. wide at the surface and 28 ft. deep, for vessels of 26 ft. draft. Both canals are estimated for a 12-ft. berm on one side. One level is proposed from river to river as an elevation of 56 ft. above mean tide at Sandy Hook, or 60 ft. above low water in the Delaware river, near Bordentown. Both projects contemplate reaching this level by three locks of 20 ft. lift each, at either end of the canal. To economize water and time, the 20-ft. canal would have two sizes of locks side by side, and the 28-ft. canal three locks abreast. The locks would have the following dimensions:

No. 1.	205	feet	by	24	feet	with	10	feet on miter-sill.
No. 2.	340	feet	"	44	feet	"	20	feet " " "
No. 3.	500	feet	"	65	feet	"	28	feet " " "

These locks would be founded on piles, with timber grillage and floors, with masonry walls faced with ashlar and backed by rubble. The gates would be iron or steel of the most approved construction. An electric lighting plant would be established, with lights at locks and at each quarter-mile on the canal line.

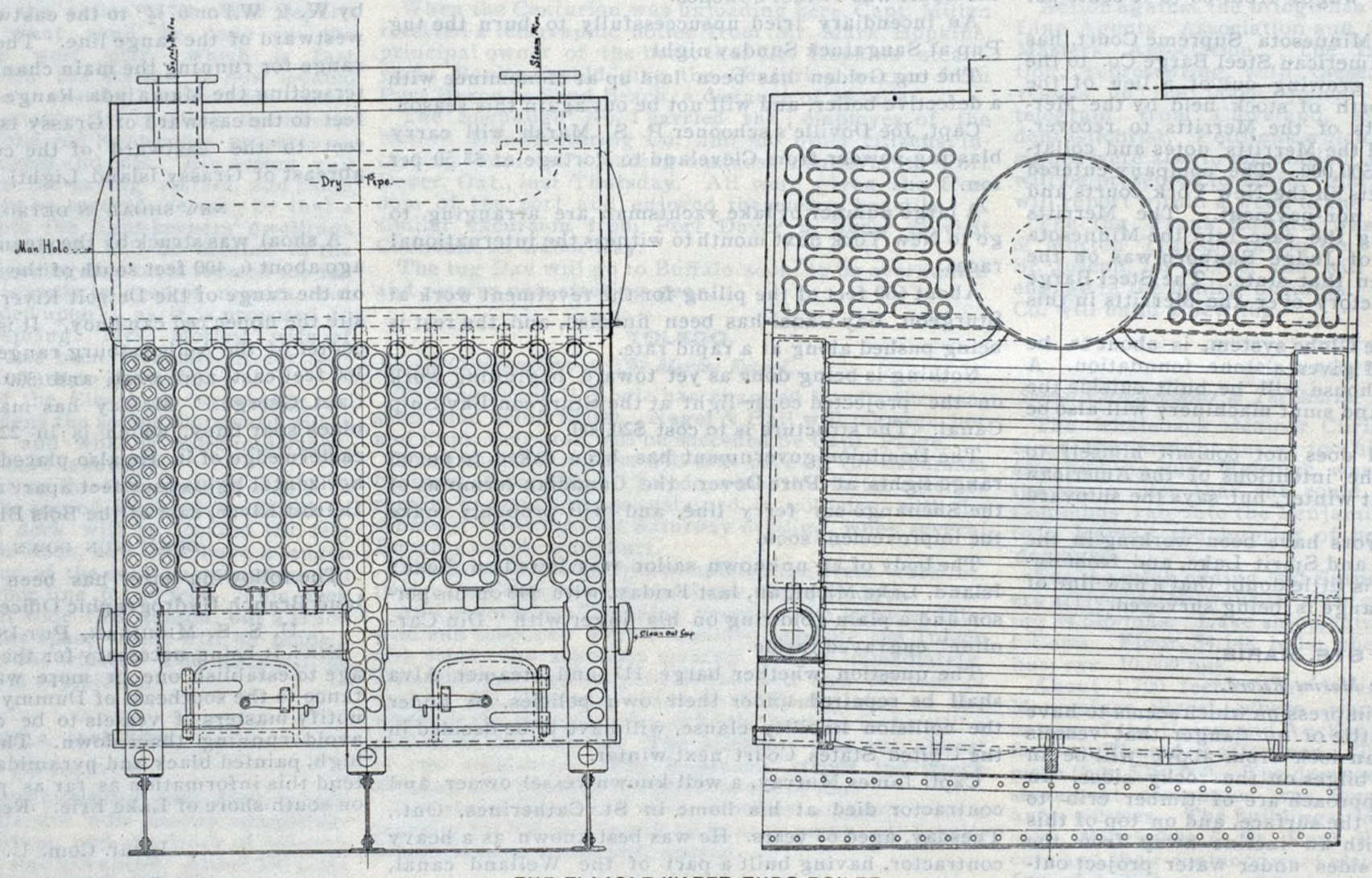
The line is located in a topographical trough, or depression, extending across the state, as before mentioned, and the soil is generally sand, clay and gravel, with some red shales toward the eastern end, insufficient in quantity to materially increase cost of excavation.

Mr. Hutton estimates the total cost of the 20-ft. canal at $14,574,100, including right of way and 15 per cent for contingencies. For the 28-ft. canal his estimate is $24,124,700. In these estimates, the two locks for the 20-ft. canal figure at $2,930,000; and the third large lock for the 28.ft canal would add $3,608,000 to this sum. The excavation on the two canals, at 20c per yard for earth and 80c for rock, would amount to $6,744,000 and $10,800,000, respectively.

The estimated water supply for the canal is about 500 cubic feet per second, on the basis of a larger business than can be reasonably expected. As the extreme low-water flow of the Delaware river above the canal feeder at Point Pleasant is about 1,500 cubic feet per second, the water supply is evidently beyond question.

Mr. Hutton bases his estimates of possible business upon the traffic of the Delaware & Raritan canal in 1871, which was then over 3,000,000 tons annually. He assumes that, with the natural increase of the last 24 years it is not unreasonable to expect a traffic of 5,000,000 tons per annum. He figures the operating expenses at $250,000 per year, or 5 cents per ton on the above estimate. To pay 5 per cent. on the cost of a 20-foot canal would add 15 cents per ton, and to pay 5 per cent. on the cost of a 28-foot canal would add 25 cents. These amount to total tolls of from 20 to 30 cents per ton. If the ordinary coastwise trader is allowed an average speed of 10 miles per hour in the ocean, 7 miles in the approaches to the canal and 5 miles per hour in the canal, with two hours consumed at the locks, there would be saved by using the canal from 10½ to 11 hours on one trip between New York and Philadelphia. This statement, however, does not include possible delay by adverse winds and storms, nor does it take into account the fact that on the canal cheaper vessels might be used than on an ocean trip.

Mr. Hutton wisely concludes his report by pointing out that the ability to use this canal will depend entirely upon the necessary improvement and maintenance of the approaches by the national government; and until these essential preliminaries are arranged with the government, he says it is not advisable to invest any money in canal construction. The 27 miles of the Delaware River above Philadelphia have a depth of 26 feet over less than seven miles; the other 20 miles would have to be deepened and maintained even for the shallower canal. No estimate of the cost of this Delaware River improvement is submitted, owing to lack of data, but Mr. Hutton states that it would possibly add $2,000,000 to the cost of the 20-foot canal and $5,000,000 to that of the 28-foot canal.



THE FLAJOLE WATER-TUBE BOILER.

THE FLAJOLE WATER-TUBE BOILER.

(ILLUSTRATED.)

If the day of the water-tube boiler has arrived, the application of this principle in the generation of steam need not be further delayed on account of a lack of varied types to please each purchaser. There are new water-tube boilers patented every few weeks, and especial merit is claimed for each.

The steam generator shown in the accompanying illustration is known as the J. A. Flajole Sectional High-Pressure Water Tube boiler, and is constructed of straight, lap-welded charcoal iron tubes placed in an inclined position, to insure perfect circulation, and connected with each other and with a horizontal steam and water drum placed transversely at the top of the tubes, by vertical passages at each end. The end connections are in one piece for every three rows of tubes, and of such form that the tubes are staggered. The tube holes are accurately bored and the tubes are expanded therein. The end sections thus formed are connected to the steam drum, and also to the circulating pipe or drum placed at the lower end of sections by short tubes which are also expanded, thereby doing away with all bolts and flanges.

The opening opposite the end of each tube is closed by hand-hole plates for large boilers, and by brass plugs for small boilers, when the tubes used are two-inch and smaller, to allow of the cleaning of any one tube independently of the other.

The outside and center sections of this boiler extend below the grates and form sediment pockets, from which the sediment is blown out, and are connected to the intermediate sections on the side by the circulating pipe. There are openings projecting through the sides of the casing from the outside sections, for cleaning out the circulating pipes, and these are closed with a brass tap placed on either side of the boiler.

There is a bank of feed water or heater coils placed on each side of the steam drum and connected with the drum by independent connections at the bottom of the head. The boiler is encased with a 2-inch double casing filled with magnesia blocks, and having an opening at the top in the center for smoke stack, also suitable doors opening to the sections, of full size, making all parts accessible at all times for cleaning out and repairs. This boiler was allowed by the Board of Supervising Inspectors, in January, 1893. A number of the boilers are already in use, and are giving the greatest satisfaction.

A SUBMARINE DINNER PARTY.

Some time ago the labor of deepening the harbor of Ciotat was completed. The celebrate the completion of his labor, and to make the occasion memorable, the contractor gave to the members of his staff and the representatives of the press a banquet unprecedented for its originality. The table was set eight metres below the level of the sea, at the very bottom of the harbor, inside the "caisson" in which the excavators had been at work, and only the narrow walls of this caisson separated the guests from the enormous mass of water around and above their heads. The new-fashioned banqueting-hall was splendidly decorated and lighted, and but for a certain buzzing in the ears, caused by the pressure of air kept up in the chamber in order to prevent the inrush of water, nobody would have suspected that the slightest interruption in the working of the air-pump would have sufficed to drown the whole party. After the banque an improvisioned concert prolonged the festivity for several hours, after which the guests reascended into the open air.—From Harper's Round Table.

THE NEW CALUMET ELEVATOR.

(ILLUSTRATED.)

Notable among the valuable additions to the already large elevator facilities of Chicago during the past year is the new Calumet Elevator, located on Dock No. 3 of the Calumet River, at the foot of One Hundred and Second street.

This elevator, shown in the accompanying illustration, was built for the Calumet Elevator Co. by the Metcalf-Macdonald Co., of Chicago. It occupies a ground space of 221 feet by 97 feet 8 inches, and is 167 feet high, with bins 71 feet 6 inches deep. There are two unloading tracks through the house. The loading track is located on the outside and covered by a hanging shed.

It contains ten elevators with a handling capacity of 9,000 bushels each per hour. These are so arranged that five legs may be used for receiving and five for shipping, or all ten may be turned into receiving or shipping as requirements may justify.

The bin story is surmounted by a cupola five stories in height, the first story of which contains the telescope trolley spouts for distributing the grain from the scales to the bins. The second story contains a 36-inch belt conveyor, which may be run in either direction, and runs the entire length of the house, by which grain may be elevated at any leg and distributed to any bin on the dock side of the house. The third floor contains ten hopper scales of 1,200 bushels capacity each. The fourth floor contains the ten garners of 1,200 bushels capacity each; also the line shafting for driving the elevator heads. The fifth or top floor contains the elevator heads and spouting from same to scales.

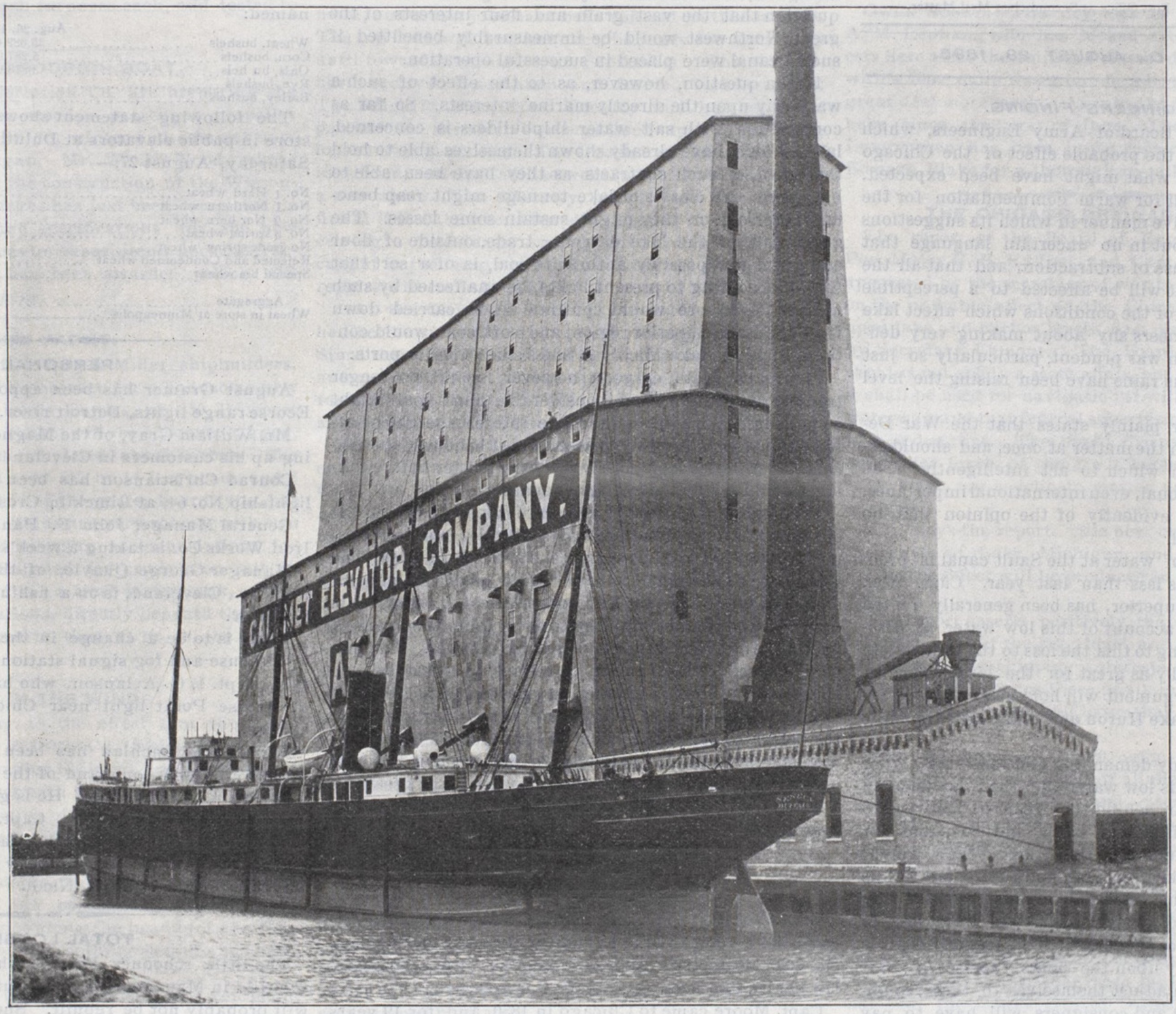
The power plant is located in a brick building at the east end of the elevator, separated therefrom by a brick wall. The power-house occupies a ground space of 81 x 40 feet, and has a brick stack 14 feet in diameter at the base, and 169 feet high. The power plant consists of a battery of four boilers 72 inches by 16 feet, and a Reynolds-Corliss condensing engine of 600 horse-power. The main engine shaft extends through into the elevator, on which is located a fly-wheel sheave 16 feet in diameter, grooved for nineteen 1½-inch ropes, fourteen of which transmit power direct to the line shaft located on the garner floor of cupola, from which power is distributed independently to the elevator heads. The remaining five grooves transmit power to the line shaft on the cleaner floor, which is located half way up in the bin story on the dock side, is 28 x 117 feet, and contains three Howes Oat Clippers, of 1,000 bushels capacity each, and three Monitor Separators of 2,000 bushels capacity each, all connected to Cyclone dust collectors with spouting, etc.

There are six dock bins fitted with improved dock spouts. The dock bins have direct spouts from the scales, which greatly facilitate the rapid handling of grain.

The house also contains a car puller of 15 cars capacity, ten sets of Clark Power Grain Shovels, and ten Metcalf Bifurcated Loading Spouts. All elevator heads, cleaning machines, etc., which the operator may desire to start or stop while the shafting is in motion, are equipped with steel plate friction clutches. All machinery for this plant was furnished by the Webster Manufacturing Co., of Chicago.

The house is equipped with an electric light plant driven by independent high-speed engine. A complete fire service system, including duplex fire pump, standpipe, hose, nozzles and twin connection for steamer is provided. Also a complete system of live air sweepers with attachments for burning the dust under the boilers.

The foundation for this elevator consists of piles driven in clusters of sixteen under the center piers, and nine under the outside and corner piers. The piles are capped with three courses of oak and pine grillage, and on top of this is laid the dimension stone piers which carry the superstructure.



THE CALUMET ELEVATOR COMPANY'S ELEVATOR IN SOUTH CHICAGO.
(Courtesy of American Elevator and Grain Trade.)

RED LEAD FOR VESSELS.

Thos. Gillard, foreman painter, Mare Island shops, says in the Painter's Magazine: "Red lead is used principally by the government for iron work, and in my many years of experience (of course, I speak now as a ship painter), I do not think I ever used anything that answered the purpose of protecting and preserving iron work, both above and below water, better than good red lead and pure raw linseed oil. With all the patent paints they are continually ringing in on the market, and I have used many of them, I think I can say without fear of contradiction that pure red lead and pure linseed oil are the ingredients for making the best known paint in the world to-day for iron of any description."

NOTES.

CLYDE shipbuilders are threatened with wage troubles.

THE British Isles have an average of 66 gales a year.

A. J. CASSATT, an American, has purchased the Marquis of Anglesea's steamyacht Star of the Sea, for £7,350.

A NEW company has been formed, with Sir W. T. Lewis as chairman, to establish a regular line of steamers to run direct between Cardiff and New York.

A SHIP canal through the narowest part of the United Kingdom is being talked of. The proposed route, of over 60 miles, is from Solway Firth to Newcastle-on-Tyne.

THE president of the Union Iron Works, San Francisco, has been invited to visit Japan and bid on contracts for the construction of new Japanese naval vessels.

THE word "thimble" was derived from "thumb bell" because it was originally worn on the thumb, where sailors still wear their thimbles. It is a Dutch invention, and in 1884 the bi-centennial of the thimble was celebrated in Amsterdam with great formality.

THE dry-dock which is being constructed for the U. S. government at Port Orchard, on Puget Sound, will be the third largest in the world. It is to be 650 feet long, 130 feet wide at the top, and 67 feet at the bottom. The depth will be 39 feet, and the draft over the sills at mean high water 30 feet.

"REGINALD, the river seems much lower to-night than last night." "Well Maude, I must say I don't notice it. How do you tell?" "Can't you see that the water is not so near the top of the boat?" "But last night there were four in the boat, and to-night we are alone." "Well but I don't see how that could make the river higher or lower." He gave it up and changed the conversation. — Fair-play.

THE new Port Royal, S. C., dry-dock, the largest in the United States, is now ready for use and was tested last Thursday with the monitor Amphitrite. A board, consisting of Capt. Wiles, Naval Constructor Hanscom and Civil Engineer Asserson, conducted the test. The vessel entered the dock three times, the gates were reversed, and the condition of the structure carefully noted after each entrance.

CHAUTAUQUA Lake will probably have a new steamer next year. Already plans are being made for a large boat to take the place of the old City of Jamestown, which was the largest on the lake. The steamers have done a heavy business this year, and many times excursionists have been crowded. The Chautauqua Steamboot Company has half a dozen large steamers now, but will build a new one to take care of increasing business.

THE MARINE RECORD is the headquarters for marine publications of every description. No. 144 Superior St.

THE MARINE RECORD

ESTABLISHED 1878.

PUBLISHED EVERY THURSDAY, AT 144 SUPERIOR ST., (LEADER BUILDING), CLEVELAND, O.

IRVING B. SMITH, CAPT. JOHN SWAINSON, } . . PROPRIETORS

BRANCH OFFICE:

CHICAGO, ILL., ... 238 Lake Street.

THOMAS WILLIAMS, Associate Editor.

SUBSCRIPTION.

One copy, one year, postage paid, . . . $2 00
One copy, one year, to foreign countries, . . $3 00
Invariably in advance.

ADVERTISING.

Rates given on application.

Entered at Cleveland Post Office as Second-class Mail Matter.

CLEVELAND, O., AUGUST 29, 1895.

THE ENGINEERS' FINDING.

The finding of the Board of Army Engineers, which has been looking into the probable effect of the Chicago drainage canal, is just what might have been expected, and yet it seems to call for warm commendation for the careful and conservative manner in which its suggestions are made. It points out in no uncertain language that the result is a plain case of subtraction, and that all the lakes below the Sault will be affected to a perceptible degree. The number of the conditions which affect lake levels render the engineers shy about making very definite predictions, which was prudent, particularly so just at a time when copious rains have been raising the level of Lake Michigan.

The report, however, plainly states that the War Department should act in the matter at once, and should secure proper data with which to act intelligently. The question is one of national, even international importance, and the engineers are evidently of the opinion that no time should be wasted.

The average depth of water at the Sault canal is probably about nine inches less than last year. Capt. Alex McDougall, of West Superior, has been generally quoted as figuring the loss on account of this low water at $10,000 per day. According to this, the loss to the Lake Michigan fleet would be fully as great for the larger part of the season, and this argument will hold good as long as conditions between Lake Huron and Lake Erie limit the draft.

Lake craft are already demanding and receiving higher rates on account of this low water and their advance in freight rates is still far behind the general increase in prices of the commodities they carry and consume. It must be reasoned, therefore, that next year's freight rates will show a marked increase, and the general public must not think that the vessels alone must pay for any decrease in the depth of water. This will be a loss to northwestern commerce in general. The loss at first, it is true, falls most heavily upon the boats themselves; but freight rates will soon adjust themselves to these conditions and the shippers and consigners will have to pay the difference.

On the sizes of lake vessels now building, six inches less draft means a loss of 200 to 150 tons in cargo capacity, and the difference in each particular boat counts up mighty in the course of a season. Higher water may be reasonably expected next year, but several seasons will elapse before the high water of years ago can be hoped for.

THE Sandusky Register printed in Monday's issue a full description of the new outer lighthouse of the Sandusky Bay range, which contains the keeper's quarters. The data for the description were culled from the MARINE RECORD and credit was duly given. The article also contained some well-placed praise for the zeal with which Col. Jared A. Smith works on the line of progress and improvement. The Register fully appreciates the fact of Sandusky's rapidly growing importance as a lake port, and is keeping abreast of the times by increasing the proportion of its space devoted to the marine interests of that port.

THE DEEP WATERWAYS CONVENTION.

Surprisingly little interest seems to be shown within the active marine circles on the lower lakes, in the coming Deep Waterways Convention, to be held in Cleveland September 24-26. This is certainly not as it should be, and if this luke-warm attitude indicates hostility on the part of the lake vessel interests to the carrying out of any such policy, their apathy is the less excusable. The convention is called to consider the advisability of connecting the lakes and the ocean by a waterway sufficiently large to be navigated by lake vessels. There are two sides to the question, and it is to the best interests of all that the negative as well as the positive side should receive full consideration.

It is said that the prime movers in this matter are avowed advocates of the establishment of a deep waterway. This is certainly true, and is reasonable, Opponents of such a plan could not be expected to agitate the subject. The leaders in the enterprise are from the great Northwest, who desire to have their seaports brought 2,000 miles nearer by such a plan. There is no question that the vast grain and flour interests of the great Northwest would be immeasurably benefitted if such a canal were placed in successful operation.

It is a question, however, as to the effect of such a waterway upon the directly marine interests. So far as competition with salt water shipbuilders is concerned, lake builders have already shown themselves able to hold their own, on such contracts as they have been able to bid upon. All classes of lake tonnage might reap benefits therefrom, or they might sustain some losses. The great bulk of the lake carrying trade, outside of flour and grain, and possibly anthracite coal, is of a sort that would, according to present lights, be unaffected by such a canal. Iron ore would continue to be carried down from the Lake Superior region, and soft coal would continue to go to Lake Michigan and Lake Superior ports.

Flour and grain cargoes, however, would no longer transfer at Buffalo, and considerable hard coal might come from tidewater. Other lake interests might be affected in ways not now foreseen, and it behooves the marine fraternity to look closely into the matter before taking a definite stand either for or against.

Then again, the marine men are those to whom the delegates to this convention will naturally look to for especial attention and entertainment while in the city. The Chamber of Commerce will, of course, have the general oversight of all this, but this body expects to organize its marine interests, and to delegate them to do the work of looking after the visitors in a proper manner. The marine interests cannot afford to attend to this duty in a shabby or indifferent manner, no matter what the prevailing sentiment may be in regard to the question which the delegates are called upon to consider. The marine men should begin individually to devise plans for demonstrating to the delegates from the interior the greatness and the future possibilities of our fresh water maritime commerce.

OBITUARY.

CAPT. JOHN P. MOORE.

Capt. John P. Moore, one of Chicago's earliest settlers and a veteran lake navigator, died at his residence, No. 3027 Main street, Chicago, Monday, of heart disease. His health had been failing for the past year.

Capt. Moore came to Chicago in 1850, and for 19 years sailed the lakes, when the business was in its infancy. He commanded the schooners Bonstile, Manhattan, Curlew, E. C. L., Hans Crocker, and Two Fannies, and the steamer Ranger. In 1869 he went to Peshtigo, Wis., and for 15 years had charge of the Peshtigo Lumber Co.'s floating property at that harbor. He moved back to Chicago in 1885 and retired from active service. The funeral services were held at 10 o'clock Wednesday morning in St. Mark's Church, Thirty-Sixth street and Cottage Grove avenue, the interment taking place at Graceland. Stewart Moore, United States Steamboat Inspector, is a son of Capt. Moore. Capt. Moore was a charter member of Kilwinning Lodge of Masons and a member of Union Lodge of Odd Fellows No. 9.

CAPT. C. LATOUR.

Capt. C. LaTour, of Bay City, owner and master of the steambarge J. C. King, died of heart disease late last week, on his way home from Ashland, in a sleeping car. Capt. LaTour had a large acquaintance on the lakes, and was highly respected. His funeral took place at Bay City this week.

THE FREIGHT SITUATION.

The ore rate reached the dollar mark from the head of Lake Superior in two jumps, last Monday and Tuesday, and the demand for boats remains strong. The Escanaba rate has gone up to 60 cents to Lake Erie, but while this is not in proportion to the Duluth rate, this condition is at ributable to the strike at the ore mines, and when these troubles are settled a further advance may be expected at once.

Soft coal cargoes to the head of Lake Superior must now pay 40 cents, and boats are scarce at that figure, and the rate may go up another notch before long.

Grain charters out of Duluth are being made at 3 cents for Buffalo, the Kingston rate being voluntarily 4½ cents; Chicago grain shipments are increasing owing to the movement of the flaxseed crop, 2 cents being paid to Buffalo.

Hard coal from Buffalo is paying 30 cents to Duluth, and 45 cents to Milwaukee,

The secretary of the Chicago Board of Trade gives the following as the visible supply of grain on the dates named:

	Aug. 26, 1895.	Aug. 27, 1894.
Wheat, bushels	35,089,000	64,771 000
Corn, bushels	5,287,000	3,037,000
Oats, bushels	3,873,000	6,098 000
Rye, bushels	.....	200,000
Barley, bushels	.....	263,000

The following statement shows the stock of grain in store in public elevators at Duluth for the week ended Saturday, August 27:—

	Bushels.
No. 1 Hard wheat	2,822,827
No. 1 Northern wheat	1,010 188
No 2 Northern wheat	298 293
No 3 spring wheat	72 113
No grade spring wheat	None
Rejected and Condemned wheat	42 371
Special bin wheat	130,820
Aggregate	4,376.612
Wheat in store at Minneapolis	4,576,920

PERSONAL.

August Gramer has been appointed keeper of the Ecorse range lights, Detroit river.

Mr. William Gray, of the Magnolia Metal Co., is looking up his customers in Cleveland.

Conrad Christianson has been appointed master of lightship No. 64, at Limekiln Crossing.

General Manager John F. Pankhurst, of the Globe Iron Works Co. is taking a week's rest at Saegertown.

Manager George Quayle, of the Ship Owners' Drydock Co., Cleveland, is on a fishing expedition on Lake Superior.

There is to be a change in the management of the light-house and fog signal station at Two Rivers Point, Wis., Sept. 1, G. Arlanson, who has been first assistant at Grosse Point light near Chicago, being placed in charge.

Capt. D. McLachlan has been compelled to temporarily relinquish command of the steamer City of Cleveland, owing to ill health. He is going west to remain until his health improves. Capt. Albert Stewart succeeds him in the command. Capt. Stewart formerly sailed the old City of Alpena, now the State of Ohio, and was later on the John M. Nicol.

TOTAL LOSSES.

The little schooner Ferret, which was sunk by the Idlewild in Maumee Bay, was cut almost in two, and will probably not be rebuilt. She was owned by M. J. Young, of Bay City.

The steam-barge Burlington, owned by the Grummonds, valued at $12,000, and insured for about half that sum, burned to the water's edge near Manitoulin Island Saturday night. She will possibly have her machinery taken out, but the hull is probably not worth saving, as she was light when she caught fire.

THE Hydrographic Office is out with a new issue of the North Pacific Pilot Chart, which contains a description of a device for distributing oil at sea to lessen the the violence of breaking waves. The device is the invention of Seaman Thomas W. Wilson, recently serving on the Portsmouth. The machine consists of a metal oil tank encased in a box with a door in the side to show the gauge, which indicates the quantity of oil in the tank A rubber tube passes from the bottom of the oil tank through the top of the surface of the sea. At the end of this rubber tube is a bulb for siphoning the oil from the tank. The naval service may take the matter up and experiment with it for adoption in the service.

SHIP BUILDING AND REPAIRS.

ANOTHER LARGE FREIGHTER.

The Chicago Ship Building Co. announced last Monday the closing of a contract with C. W. Elphicke and Arthur Orr, of Chicago, and Capt. M. M. Drake, of Buffalo, for the construction of a new steel steamship which will be a precise duplicate of the steamer Chili, owned by Drake, Elphicke and others. She will be 345 feet long over all, with 326 feet keel, 42 feet beam, and and 26½ feet deep. She will have two spars and one stack, and will have eight gangways for loading flour and package fright, with the usual hoisting equipment.

The Chicago Ship Building Co. then sublet the contract for the new steamer's propelling engine and boilers to the Cleveland Ship Building Co. These will be duplicates of the Chili's machinery, of the triple expansion, inverted type, the cylinders of the engine being 20, 33, and 54 by 40 inches. There will be two boilers, 12 feet 4 inches in diameter by 11 feet 6 inches in length, with two 48-inch furnaces each, and tested to 170 pounds pressure.

THE NEW GOODRICH BOAT.

The Goodrich Transportation Co. are preparing the rough plans of the new wooden passenger propeller which they intend to build, for winter and summer navigation on Lake Michigan. Mr. W. J. Wood, whose work of superintending the construction of the Wisconsin & Michigan ferry barges has just been completed, is preparing the plans and specifications for the new steamer, and is expected to superintend her construction after the contract has been awarded, which will probably be in a few weeks.

A NEW YACHT.

The Cleveland firm of Murphy & Miller, shipbuilders, have just been awarded a contract for a handsome new sailing yacht, for Mr. Louis Cowles, of 356 Prospect street, Cleveland. The yacht will be schooner-rigged, and will measure, when completed, about 39 tons. She will be 60 feet in length over all, by 14 feet beam, and 8 feet depth of hold. She is of the center-board type, but is so arranged that her cabins are very roomy, with two private staterooms, and sleeping accommodations for several more. She is designed for crusing on salt as well as fresh water, and has a fresh water tank, with a capacity of about 500 gallons, directly beneath the cockpit. She may be finished in time to go to the ocean this year.

STILL IN THE WIND.

Reports are circulating to the effect that the Lake Erie and Detroit River Railway Co., which has leased the London and Port Stanley Railroad, and is extending the former line to connect with the latter, is trying to arrange for the construction of two car ferry boats to ply across Lake Erie, between Cleveland and Port Stanley, President Walker visited Cleveland last week, and spent some time on the docks, but kept his own counsel.

Talk of one to three new passenger boats of small types for excursion service along the head of Lake Erie is reported from Toledo, but nothing definite has been decided.

The Union Dry Dock Co., of Buffalo, has as yet made no announcement that it will proceed with the construction of a duplicate of the steamer Chili, but it is understood that the project has not been relinquished.

OUTPUT OF THE SHIPYARDS—NEW WORK.

The new steamer Yale, building for R. R. Rhodes and others, will be ready to leave the yard of the Cleveland Ship Building Co. on Saturday night or Sunday morning next, when she will at once proceed to Erie to take one cargo of coal for Sheboygan, Wis. She presents a very handsome appearance, and both builders and owners are proud of her. General Manager James Wallace says she has already earned $40,000, for she could not be duplicated to-day for less than that sum added to her real cost. The new Wilson steamer is growing steadily at this yard.

The work of receiving the material for the keel of No. 64, the new 432-foot steamer, began at the shipyard of the Globe Iron Works Co. Wednesday. The keel will be laid as soon as the material gets in, and work will be pushed as rapidly as the plate mills will allow, every effort being made to get the benefit of the fine fall season. Specifications for material for the revenue steamer John G. Carlisle have not left the hands of the government, but work on this boat will go on as fast as the Circumlocution Office will permit.

No. 2 of the Wisconsin & Michigan Car ferry barges was launched in Bay City Tuesday afternoon, and will go to Chicago at once. The No. 1 is already in commission. Work at F. W. Wheeler & Co.'s yard, while progressing with commendable speed, has not brought anything to the launching stage..

The new steel barge Aurania, built at the Chicago Ship Building Co.'s yard for John Corrigan of Cleveland, will be launched this, Thurday, afternoon. She is expected to be completed Saturday, and to be ready to leave in tow of the steamer Aurora, which will go after her from Milwaukee.

GENERAL REPAIR WORK.

Tne past has been a fairly lively repair week at the Cleveland basins. The large dock of the Ship Owners' Co. is so near completion that it cannot be flooded any more, and a few jobs have been refused on this account. The big dock will not, however, be ready for occupancy until towards the middle of September. The A. Gebhardt received a new stem and forefoot late last week. The Bulgaria was in dock Tuesday and had her wheel patched and her stern-bearings lined up, besides being looked over generally. The Onoko had her stern-bearings fixed, and the Cadillac went in Wednesday night for a new wheel. The Waverly, which was damaged by fire at Escanaba about ten days ago, is at the dock, receiving a new texas and cabin forward. The fire caught in the lamp room, below the spar deck, and the repairs will cost about $3,000.

At the Cleveland dry-dock the schooner Wenona had her butts calked and a leak stopped last Friday. Since then the Desmond had had her bottom re-calked and a new stem put in and the Mariposa got a new hub for her sectional wheel. The Ashtabula tug Sunol had a leak stopped and received a new stern pipe

The damage to the John B. Lyon, which was bulged out by a collision, has been greatly overestimated. Capt. Dan McLeod and C. E. Benham held a survey on her at Lorain, and find that $1,500 will repair her. Her injury consisted chiefly in broken planking, frames and stanchions.

BUFFALO.—The steamer W. P. Ketcham has been getting some new bottom plank in Mills' dry-dock, and the Samuel Mather got a new wheel. The tug Townsend Davis, for Hand & Johnson's line, is in the Union dry-dock for a new rudder.

DETROIT.—Some extensive changes will be made in the machinery of the ferry-boat Promise next winter, her engines being altered in the Cylinders so as to make them more nearly correspond with those of the Pleasure. Both these steamers will be equipped with steam steerer. The steam yacht Idler is at the upper dry-dock for an over-hauling. At Oades' shipyard the schooner Col. Ellsworth has a just complete $2,000 worth of repairs. The tug Cora is being ironed off and is receiving a new shaft. The wrecker Saginaw has been having a little moinor work done, and Starke's dump scow has been re-calked. The Frontier Iron Works is still overhauling the machinery of the Waldo Avery, which will be returned to Bay City and placed in the rechristened boat soon.

CHICAGO.—The steamer Emma E. Thompson is receiving a general overhauing at Miller Brothers' shipyard. She will be fitted out and placed in commission at once. Captain O. S. Olson will command her. The tug Charles Halladay was in Miller Bros.' dock to have a leak stopped and receive a new shoe; the schooner A. G. Morey is in for some new bottom planking and re-calking. The steamer Fountain City was in for bottom re-calking, and the tug Alert to re-fasten her wheel. The steamer Mabel Bradshaw, got repairs to her stern bearings.

PORT HURON.—The schooner Fannie Campbell (Br.) is having extensive repairs, amounting almost to a rebuild at Dunford & Alverson's dry-dock. The schooner Kate Winslow, which collided with the Northern Light in the fog Saturday night, is making some repairs before continuing her trip down. Her fore rigging was carried away and her rail and stanchions were damaged. The E. C. Pope, which collided with the Northern Light shortly before the Winslow did, had a narrow escape, being cut through to within six inches of the water line. The hole was on the port side, abreast of the machinery, and was about ten feet square. She had a wooden patch put on here and proceeded to Buffalo at noon Sunday.

Baker Bros., of Detroit, have succeeded in raising the Nellie Torrent, which sunk below Miller's coal dock. Work on her was pushed rapidly after she was brought to the surface, and she left for Buffalo early this week.

The work on the steamer H. E. Runnels is nearly completed. The work is being rushed as fast as possible.

The Wolverine Dry-dock Co. are dismantling the old Mineral Rock. Her engines and boilers will be taken out and her hull laid away until times pick up, and then she will be converted into a tow-barge. She will carry about 375,000 feet of lumber.

The burned steambarge City of Concord, which was purchased by Mills & Co., will receive an entire rebuild, and a new boiler. It will be remembered that she was burned at Toledo, a year or two ago. She will be put in first-class shape for the lumber and coal trade.

OWEN SOUND.—The dry-dock is being operated by A. M. Lenham, who has looked after the Polson interests here since the shipyard closed down. He says that with a foot more water on the sill, the dock could get a great deal more work. As it is, the dock has been fairly busy since the first of June. The propeller United Lumbermen has been in for repairs, and the schooner Edward Blake for a thorough re-calking.

THE CHICAGO DRAINAGE CANAL.

The report of the Board of Engineers, Gen. O. M. Poe, Major E. H. Ruffner and Capt. Wm. L. Marshal, appointed by the secretary of war to examine and report on the probable effect of the Chicago drainage canal upon lake and harbor levels, has just been made public by Secretary Lamont. The board suggests that the canal is not solely a state affair, but says that as soon as it shall be used for navigation it will become a national waterway and that federal supervision must be extended to it in due time. The board discusses at some length the water levels of the great lakes, pointing out that these levels are a delicate matter and subject to many changes.

"If," says the report, "the new outlet should reduce the levels of Lake Michigan and Huron about six inches the effect will be produced in full in about two years."

The report asserts positively that the tapping of the lakes must effect the lake level and discusses the effect of this upon the shipping interests, concluding that if the levels are reduced three or six inches the boats must load accordingly and will loose that much load on each trip.

The abstraction of 10,000 cubic feet of water per second will lower the levels of all the lakes of the system except Lake Superior and reduce the navigable capacities of all harbors and shallows throughout the system to an extent that may be determined, if at all, by actual measurement only.

Under the laws of the United States these changes in capacity cannot be made without federal authority, and to enable the executive officers of the United States to act advisedly in the matter it is necessary in the opinion of the board not only that these measurements be taken but that the money cost of restoring the navigable depths in channels and harbors be carefully estimated.

The board submits estimates made by other engineers indicating that a loss of seven inches is possible in Lakes Michigan and Huron as the effect of the canal. The trustees of the drainage canal contemplate taking only 300,000 cubic feet under present conditions, but after the canal is opened the board assumes that ultimately the entire 600,000 cubic feet will be drawn from Lake Michigan as authorized by the state charter. The report says that while the channels and harbors of the great lakes below St Mary's falls will be injuriously affected by a diminution in depth, the inner harbor of Chicago will be diminished also by the introduction of a current which in the present condition of the river, with the minimum flow of 5,000 cubic feet per second, is entirely inadmissible. The estimate of the effect of the canal on this harbor should, they say, also consider this element.

The board of trustees have not yet determined upon a plan of treatment of this navigable channel, and their plans may, the report suggests, be such as to improve, impair, or destroy its utility as a navigable river.

IN THE ENGINE ROOM.

A SHIP WITH FORTY-EIGHT BOILERS.

Where large boiler power and high pressure are required it has become the practice to divide the boiler plant into many small units, instead of fewer boilers of larger size. While this may be essential or desirable from the necessity of keeping members or details of small diameter where high pressure are used, it is objectionable from some practical points of view. It very much increases the cost of installation, for it is more expensive to make 20 small boilers than ten of double their capacity; it increases the number of details required, for each unit must have its own valves and fittings, and it takes more room in the ship, for two boilers, each of a given capacity, can not be put in the space of one boiler of their combined capacity. It also very greatly increases the expense of attendance and maini tenance, for doubling the number of units in a steel plant requires that each boiler be closely watched as to its performance. It should also increase the consumption of fuel in some degree; we doubt if the evaporative efficiency of 300 tons of coal burned under 20 boilers is as high as the same quantity burned under ten boilers.

These observations have been induced by the fact that an English warship now building is to have no less than 48 separate boilers in her. There are in them 7,200 tubes, and consequently 14,400 tube ends to keep tight; consider further, as previously remarked, that each boiler must have its own outlet and inlet valves, fittings, appurtenances and belongings, and. we get some idea of what is entailed by putting many small boilers into a vessel.

FIRING STEAM BOILERS.

If an engineer must hire the fireman, let him look first for a sober man; next see that he is neat, careful and reliable; next ascertain if he wants to learn something new each day. If the man is a "know-it-all" it will not pay to take him into the fire room. No matter what his other qualifications may be, he will not prove a financial success. His introduction to the coal pile will mean a considerable hole in the owner's pocket book. The new fireman, if he understands his business, and especially if he has a new boiler, will start a slow fire. He will be easy on that boiler for a day or two; he will start the fire with wood, if possible, as that fuel can be regulated closer than any other form.

For a medium sized boiler he will be very lazy in getting up steam the first day. Probably three or four hours will be consumed in getting up the pressure. While this is being done he will have a good look at every seam and every rivet that is within his reach. He will take pains to let the air out of the boiler as soon as the pressure begins to start. This is easily done by leaving a gauge cock or two open, or by raising the safety valve if the lever variety is used.

After the new boiler has been gradually worked up to a pressure, he will let it stand an hour or two, then open the blow-off at surface, and give a chance for all the oil and light dirt to run out. After this the boiler may be put to work in earnest, and if the above directions be followed he will have very little trouble from leaky seams or tubes.

FIRING WITH COAL.

A sign of bad combustion when burning coal is a red flame in the furnace. A bright flame is to be desired, and the brighter the flame the higher the temperature of combustion. The higher the temperature of combustion, the more economical is the burning of the fuel. It is good practice to make the top of coal surface slightly saucer-shaped. This is for the purpose of filling the corners and edges of the grate so as to stop any ingress of cold air. Coal burns away very quickly at the edges of a grate, and is apt to leave holes through which a considerable amount of cold air finds its way. If the edges of the grate are covered a little deeper than the center, and the covering kept so there will be little trouble from air holes around the edges. Anthracite coal should be thrown on the grate very evenly; "three lumps thick" is the rule. When the lower lump or layer is supposed to be very nearly consumed, the next layer is at its height of combustion and is doing its maximum work; the top layer is of fresh coal, just beginning to ignite. By the time it is fully burning, the bottom layer will have been entirely decomposed, and another layer of fresh coal has been placed on top. In practice, of course, it is not possible to get the live coal three layers deep, but this is the theoretical result which is to be worked for.

Open the furnace door as little as possible; make all the air that goes into the furnace pass up into the grates. In burning bituminous coal these precautions are not necessary; with that variety of fuel a shovelful of coal can be put in each place instead of a thin sprinkling, as is necessary with anthracite. The bituminous coal fire, however, requires frequent shaking up, as it frequently cakes together into a hard mass through which fire cannot pass.

LITERARY NOTICES.

Mrs. Humphry Ward's new novel, upon which she has been at work for the past two years, will be called "Sir George Tressady." It will appear as a serial in The Century beginning with November.

The government list of beacons, buoys and daymarks in the United States on the Northern Lakes and Rivers, corrected to the opening of navigation, 1895, has just been published and will be sent free of charge to any shipmaster. The Hydrographic Office will furnish lists of changes up to August 1, upon application.

The September number of Cassier's Magazine will contain a profusely illustrated article on "Lake Steamships for Ocean Traffic," from the pen of Mr. Joseph R. Oldham, of Cleveland. The paper will be especially interesting, as appearing just prior to the Deep Waterways Convention, in Cleveland, and Cassier's will undoubtedly have a call for a number of extra copies on the lakes.

Whitworth Bros. No. 60 High St., Cleveland, have just issued their 1895-6 edition of their wall and pocket map and street guide of the City of Cleveland. This map is prepared on the same standard of accuracy and completeness which has made these maps a feature in the market heretofore, and is meeting with ready sale. The same firm is engaged on the publication of a joint directory and maps of Elyria and Lorain, which will be issued in a few weeks.

A capital feature of Harper's Weekly in the immediate future will be a series of humorous papers entitled "A House-Boat on the Styx," written by John Kendrick Bangs and illustrated by Peter Newell. Adventures and conversations in the lower world are the themes attacked by this brace of humorous talents, and the distinction of the defunct persons whose doings and sayings are recorded leaves nothing to be desired.

The leading article in the September Harper's gives the impressions received by Richard Harding Davis during a recent overland journey in Honduras, undertaken for Harper's Magazine and Harper's Weekly. The title is "Three Gringos in Central America," and the paper is attractively illustrated. Owen Wister, in "The Evolution of the Cow-Puncher," traces the geneology of the American cowboy back to the Saxon Crusades and the Cavalier. Illustrations have been made for the article by Frederic Remington. In "Notes on Indian Art" Edwin Lord Weeks shows that the artistic spirit is still vigorous among the Hindoos, and that the best traditions of workmanship are carefully preserved. Seventeen illustrations by Mr. Weeks accompany his text. Mark Twain relates some curious experiences in an article called, "Mental Telegraphy Again." The third paper in Poultney Bigelow's "German Struggle for Liberty" series describes the demoralization of Prussia through the cowardice and treason of the nobles, the revival of patriotism among the people through the efforts of Nettlebeck, Schill, Gneisenau and Scharnhorst, and the famous conference at Erfurt, at which Napoleon alternately dazzled and insulted the Czar and the German princes. In "The Story of a song" David Graham Adee gives the history of "Malbrouk s'en va-t-en guerre," the song that Trilby sang at her Paris debut. "A Fifteenth-Century Revival," by Rev. Dr. J. H. Hobart, is an estimate of the awakening of Florence under the influence of Savonarola. In a thoughtful paper on "Arabia, Islam, and the Eastern Question," Dr. Wm. H. Thomson makes clear the reasons for the anomalous position of the Turk in Europe, and shows that the peril of the Armenian is not the result of local or temporary hatred, but of a racial and religious fanaticism which has characterized the Moslem from the beginning.

AN EXTENSION.

Mr. Hunter, of the firm mentioned below, has paid several business visits to Cleveland, Chicago and other lake ports, and has made a number of friends on fresh water, all of whom will be interested in the following from Fair Play:

The firm of C. S. Swan & Hunter is about to be converted into a Limited Liability Co., with a view ot further developing and extending the business. The board of directors will consist of the following, but one or more of the managers may be added after a short time: Mr. Geo. P. Hunter, chairman, Mr. J. Price, J. P. (mayor of Jarrow), Mr. T. H. Bainbridge, J. P., (director of Consett Iron Co), Mr. W. Denton and Mr. C. S. Swan. The capital is fixed at £200,000, and the directors will hold all the shares, which are for the shipbuilding yard alone, not the engine works. The managers will remain as at present, namely: Mr. R. Hudson, Mr. E. W. De Russett, M. I. C. E., and Mr. R. F. Hodge. Concerning this change a correspondent writes: "I understand that the firm of Swan & Hunter is to be floated as a private Limited Liability Co., and that Mr. John Price, the late general manager of Palmer's Shipbuilding Co., will have a seat at the board, as will also his nephew, Mr. W. Denton, at present assistant general manager of Palmer's Co. Rumors have been afloat for some time past as to Mr. Price's probable connection with the above concern, but it is only within the last few days that it has been confirmed. The shipbuilding yard of Messrs. Swan & Hunter, of which for many years Mr. Hunter has been the sole head, has of late been very greatly improved, and a large number of new machines have been added, making it one of the best equipped concerns on the Tyne. Considerable interest is being manifested in Tyneside circles as to the changes which are taking place, and also who is likely to go to Jarrow."

NEWLY ENROLLED TONNAGE.

Following is a list of lake vessels to which official numbers and signal letters have been assigned by the Commissioner of Navigation, for the week ended Aug. 17:

Official No.	Rig.	Name.	TONNAGE. Gross.	Net.	Home Port.	Where Built.
107,184	St. s.	Alma C.	11.86	8 05	Detroit	Detroit
93 311	St. s.	HenryH Boyd	36 73	24.98	Erie	Buffalo
67,314	Bge.	No 2 (W.&M.)	1,548.79	1,462.36	Chicago	W. Bay City

TRADE NOTES.

ALL Charts and Sailing Directions published by the Hydrographic Office, can be procured at the office of THE MARINE RECORD, 144 Superior street, Cleveland.

The Ransome Subway Co. has just issued a new illustrated catalogue showing the merits of the monolithic irrigation canals, tunnels, sewer and water pipes, electric and cable conduits.

Two new steamships are being built by the Cramps. One is the Comanche, for the Clyde Line, and the other the Curacoa, for Bolton, Bliss & Dallett, of New York, to run on the Red D. Line.

The attention of contractors is called to an advertisement on another page, in which Major M. B. Adams asks for bids at Detroit, on a fog signal house on the north pier at Sheboygan, Wis.

"Red Lead, and How to Use It," is the title of an interesting little pamphlet circulated by the National Lead Co., No. 1 Broadway, N. Y. Another well-written book of their gratuitous issue is "Concerning Babbitt and Anti-Friction Metals."

The Continental Iron works, West and Calyer streets, Brooklyn, N. Y., has recently obtained orders for 12 Morrison Suspension Furnaces, six of which are to go to the W. & A. Fletcher Co., and six to the Morgan Iron Works, to be used in boilers of two freight steamers being built at Roach's yard, Chester, for the Vermont Central Railroad.

C. Endress & Sons, of White Fish Point, write as follows to H. G. Trout, of Buffalo, under date of August 16: "The wheel you furnished for tug E. E. Endress has been thoroughly tried, and we are more than pleased with the results. When we ordered the wheel we did not expect anything better than what she had on, but the tug is now making a mile an hour better time, and backs fully as well if not better than the old wheel."

The Calumet Iron & Steel Co., of Chicago, has leased its furnace at Cummings, South Chicago, to the Calumet Furnace Co., which was incorporated a few days ago by F. S. Wheeler, H. K. Tenney and E. I. Toiot, with a capital stock of $50,000. The furnace is now being thoroughly overhauled and will be ready to go into blast by the last of the month. It has a capacity of about 1,000 tons a week, and will be run either on bessemer or foundry.

WILLIAM L. BROWN, President.
WALTER F. COBB, Vice President and Treasurer.
W. I. BABCOCK, Manager.
O. R. SINCLAIR, Secretary and Asst. Treas.

Chicago Ship Building Co.

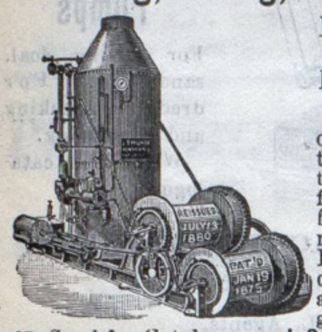
STEEL SHIPBUILDERS and DRY DOCK PROPRIETORS,

DRY DOCK AND YARDS: 101st Street and Calumet River.

LONG DISTANCE TELEPHONES: SHIP YARD & DRY DOCK OFFICE, "SOUTH CHICAGO 40." CHICAGO OFFICE, 1013 ROOKERY, "MAIN 3447."

Station S, CHICAGO, ILL.

Hoisting, Mining, Bridge Erecting,

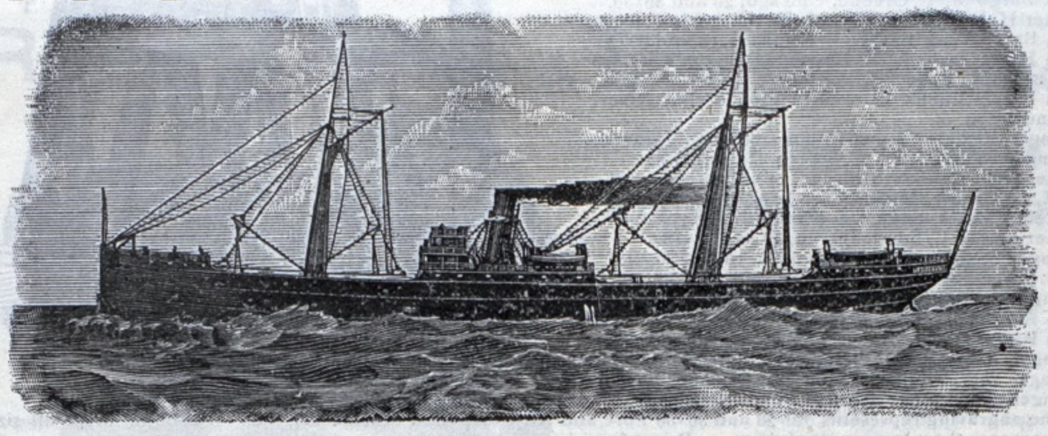


Dock Build'g, Pile Driving, Coal Hoisting and Quarry Engines

of any power, sugar cane transferring engines, transferring machines for depositing cane from car to carrier, with my improved Patent Friction Drums, with or without Boilers. Any amount of reference given. Established 1870.

☞ Send for Catalogue. J. S. MUNDY, Newark, N. J.
741 Market St., Philadelphia, Pa.
22 Light St., Baltimore, Md.
117 Water St., Pittsburgh, Pa.
249 South Jefferson St., Chicago, Ill.
715 North Second St., St. Louis, Mo.
39 Magazine St., New Orleans, La.
34 Fremont St., San Francisco, Cal.
85 Front St., Portland, Oregon.
Fourth & Wakouta Sts., St. Paul, Minn.
218 Congress St., Boston, Mass.

F. W. WHEELER & COMPANY.,



BUILDERS OF ALL KINDS OF

IRON, STEEL AND WOODEN SHIPS,

FOR LAKE OR OCEAN SERVICE.

West Bay City, Mich.

F. W. WHEELER, Prest. E. T. CARRINGTON, V.-Prest
C. W. STIVER, Secretary & Treasurer.

FRONTIER IRON WORKS,

MARINE ENGINES,

DETROIT, MICH.

INCORPORATED 1794.

Insurance Company of North America.

CAPITAL, Paid up in Cash, - - - $3,000,000.00
ASSETS, - - - - - - - 9,562,599.92

CHARLES PLATT, President. WILLIAM A. PLATT, Vice-President.
EUGENE L. ELLISON, 2nd Vice-President. GREVILLE E. FRYER, Sec'y & Treas.
JOHN H. ATWOOD, Assistant Secretary.

Lake Marine Department.

GEORGE L. McCURDY, Manager, CHICAGO, ILLS.

MARINE AND INLAND INSURANCE.

ATLANTIC MUTUAL INSURANCE COMPANY,

(ORGANIZED 1842.) Office, 51 Wall Street, NEW YORK.

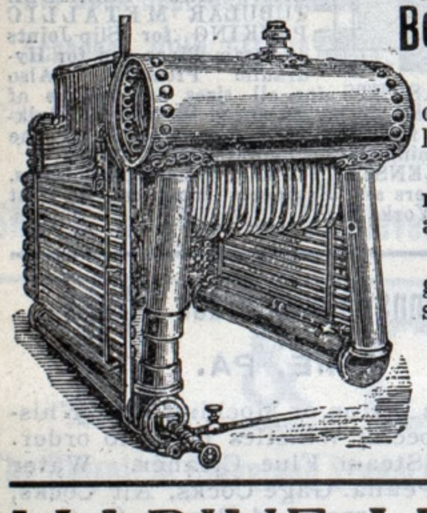
Insures against Marine and Inland Transportation Risks and issue Policies making Loss Payable in England.

Assets over $10,000,000 for the Security of its Policies.

The profits of the Company revert to the assured, and are divided annually upon the premiums terminated during the year; thereby reducing the cost of insurance. For such dividends, certificates are issued bearing interest until ordered to be redeemed, in accordance with the charter.

J. D. JONES, Prest. W. H. H. MOORE, Vice-Prest. A. A. RAVEN, 2nd Vice-Prest. J. H. CHAPMAN, Secy.

Boyer's Patent Sectional Water Tube Boilers



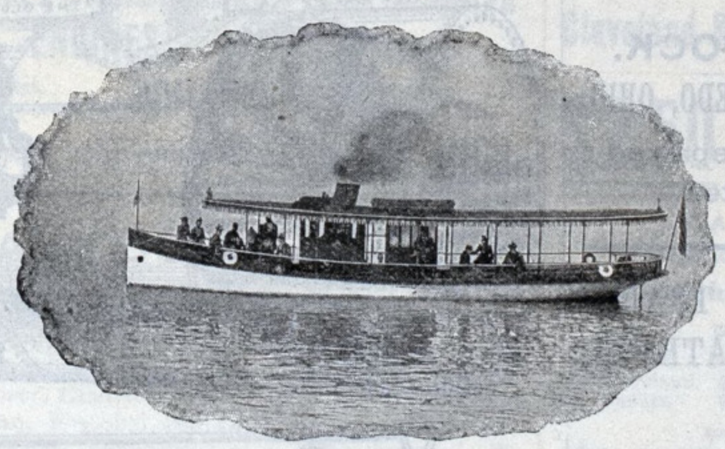
These rapid Steaming Boilers require less room, occupy less space in width, height and length; weigh less than any other.

Have short, perfect circulation, no dead ends, no joints in the fire, and any engineer can get at all parts of it.

The Steam Yacht "Rex," having 25 square feet grate surface and 1000 square feet heating surface, steamed 144 miles on 1000 lbs. of coal.

Address:

L. BOYER'S SONS,
90 Wall St., New York City.



Marine Iron Works,

Clybourn & Southport Aves.,

CHICAGO.

BUILDERS OF

STEAM YACHTS, MARINE ENGINES, MARINE BOILERS.

Write for List of Boats for Sale.

MARINE VALVE OIL FOR INTERNAL LUBRICATION. RENOWN ENGINE OIL FOR EXTERNAL LUBRICATION.

Marine Valve, Renown Engine, Eldorado Engine, Crank Case, Victor Signal, Dark Lubricating, Mineral Seal, Head Light, Arctic Cup Greases, and Lard Oils,

—CARRIED IN STOCK AT THE—

Standard Oil Company's Marine Depot,

123 River Street, CLEVELAND, O.

TELEPHONE 77. MAIN OFFICE TELEPHONE 682.

ALSO FOR SALE BY STANDARD OIL CO.,

Chicago, Ill., No. 5 Wabash Ave.
Racine, Wis.
Milwaukee, Wis., Broadway & Mason.
Sheboygan, Wis.
Manitowoc, Wis.
Green Bay, Wis.
Marinette, Wis.
Oshkosh, Wis.
Duluth, Minn.
West Superior, Wis.
Hancock, Mich.
Marquette, Mich.
Buffalo, N. Y.
Sault Ste. Marie, Mich.
West Bay City, Mich., M. C. Ry. & 10th St.
Saginaw, Mich., Eighth & Sears Sts.
Detroit, Mich., 46 Jefferson.
Toledo, O., Summit & Monroe Sts.
Atlantic Refining Company, French & 16th Sts., Erie, Pa.
D. Robeson, Port Huron, Mich.
W. S. McKinnon, Ashtabula Harbor, O.
Hull & Rand, Huron, O.
Edward Brammall, Benton Harbor, Mich.
Baby & Dale, St. Clair, Mich.
N. C. Alten, Lorain, O.
A. F. Harrington, Conneaut Harbor, O.
A. H. McGonagil, South Chicago, Ill.
Marine Supply Co., Fairport, O.
F. Kranz, Sandusky, O.
The M. I. Wilcox Cordage & Supply Company, Toledo, O.

MARINE ENGINEERING

Also Stationary and Locomotive; Mechanics; Mechanical Drawing; Electricity; Architecture; Iron Work; Railroad, Bridge and Municipal Engineering; Plumbing; Heating; Mining, Prospecting; English Branches. CANDIDATES PREPARED TO OBTAIN LICENSES. Courses begin with Arithmetic. Send for Free Circular, stating subject you wish to study.

TAUGHT BY MAIL THOROUGH PRACTICAL TRADE MARK REGISTERED

The International Correspondence Schools, Scranton, Pa.

Walter H. Oades' Shipyard,

MARINE RAILWAY AND SHEERS,

Ship Carpenters, Calkers & Joiners.

Working on reasonable terms.

Yard: Foot of Dubois Street, DETROIT.

Telephone 1670, 3 rings.

ABRAM SMITH. ANGUS H. SMITH.

ABRAM SMITH & SON,

SHIP-BUILDERS,

ALGONAC, MICH.

Wooden Ships of any description built, rebuilt, or repaired.

Send for specifications, prices, etc.

Good slips for laying up boats.

A. J. MORSE & SON.

DIVING APPARATUS

140 CONGRESS ST. BOSTON.

A. GILMORE & SONS

TOLEDO DRY DOCK.

Telephone No. 157, TOLEDO, OHIO.

Vessels Docked and Repaired at Reasonable Rates.

PATENTS, CAVEATS, TRADE-MARKS, DESIGN PATENTS, COPYRIGHTS, Etc.

CORRESPONDENCE SOLICITED.

John A. Saul, Atlantic Building, Washington, D. C.

ROBERT E. HILLS,

STEAM FITTING AND HEATING

Wrought Iron Pipe and Fittings, Engineers' Supplies; General Jobbing Work Done Promptly.

Also Proprietor of North Side Iron Works.

57 & 59 North Wells St. CHICAGO, ILL.

Subscribe now for THE MARINE RECORD. $1.00 will pay for six months, $2.00 for one year, including all supplements.

ESTABLISHED 1871. INCORPORATED 1893.

MONTAGUE IRON WORKS CO.,

MANUFACTURERS OF

MONTAGUE, MICH.

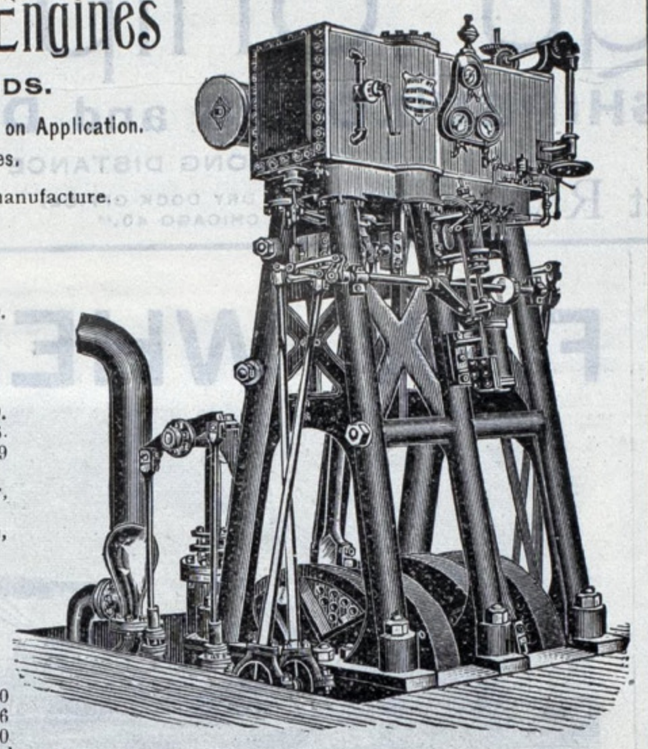
Marine and Stationary Engines

AND BOILERS OF ALL KINDS.

Heavy Castings a Specialty. Prices Quoted on Application.

Fore and Aft Compound Marine Engines.

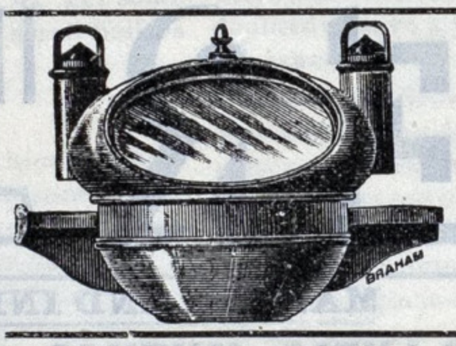
The Engines in the following boats are of our manufacture.



Tug, Hunter, Chicago, 15 and 28x22.
Tug, Tacoma, Chicago, 16 and 30x24.
Tug, Zenith, Duluth, 18 and 36x40.
Steamer Glenn, South Haven, 14 and 28x20.
U. S Survey Steamer, W. S. Hancock 12 and 21x20.
Steamer Pine Lake, Charlevoix, 16 and 30x24.
Passenger Steamer Pilgrim, St. Clair, 14 and 28x30.
Steam Barge Iona, Grand Haven, 24 and 46x42.
Steam Barge M. T. Greene, Chicago, 20 and 36x36.
Steamer H. W. Williams, South Haven, 18 and 36x30.
Steam Barge Mark B. Covell, Manistee, 18 and 30x26.
Steam Barge Isabella J. Boyce, Michigan City, 19 and 32x26.
Steam Barge Luella H. Worthington, Cedar River, 19 and 36x30.
Passenger Steamer City of Kalamazoo, South Haven, 20 and 40x30.
Steamer Oval Agitator, Chicago, 14 and 28x20.
Tug E. G. Crosby, Muskegon, 16 and 30x24.
Tug Peter Coates, Sault Ste. Marie, 10 and 20x16
Steamer Lorain L, South Haven, 12 and 21x16.
Passenger Steamer Lotus, Escanaba, 16 and 30x24.
Steam Barge Sachem, Grand Haven, 21 and 38 36.
Passenger Steamer Bon Ami, Saugatuck, 14 and 28x20
Steam Barge Charles A. Street, Chicago, 20 and 36x36
Steam Barge Edward Buckley, Manistee, 18 and 36x30
Passenger Steamer E. G. Maxwell, Pentwater, 14 and 28x20.
Passenger and Freight Steamer Bon Voyage, Saugatuck, 16 and 30x26.
Passenger and Freight Steamer Mabel Bradshaw, Muskegon, 16 and 28x26.

The engraving represents our 20 and 36x36 Fore and Aft Compound Marine Engine. We build them all sizes and guarantee them to give satisfaction. Prices furnished on application.

MONTAGUE IRON WORKS CO., Montague, Mich.



FRANK MORRISON, COMPASS ADJUSTER

—AND MANUFACTURER OF—

NAUTICAL INSTRUMENTS.

COMPASSES. BAROMETERS, PATENT LOGS, BINNACLES, STEAM GAUGES, MARINE GLASSES, ENGINE INDICATORS.

All Nautical Instruments Carefully Repaired.

Office with Upson, Walton & Co., 161 River St., Cleveland, O.

J. H. OWEN, Prest., Chicago. F. H. VAN CLEVE, Sec'y, Escanaba. Capt. GEO. BARTLEY, Supt., Escanaba.

ESCANABA TOWING & WRECKING CO., Escanaba, Mich.

Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready.

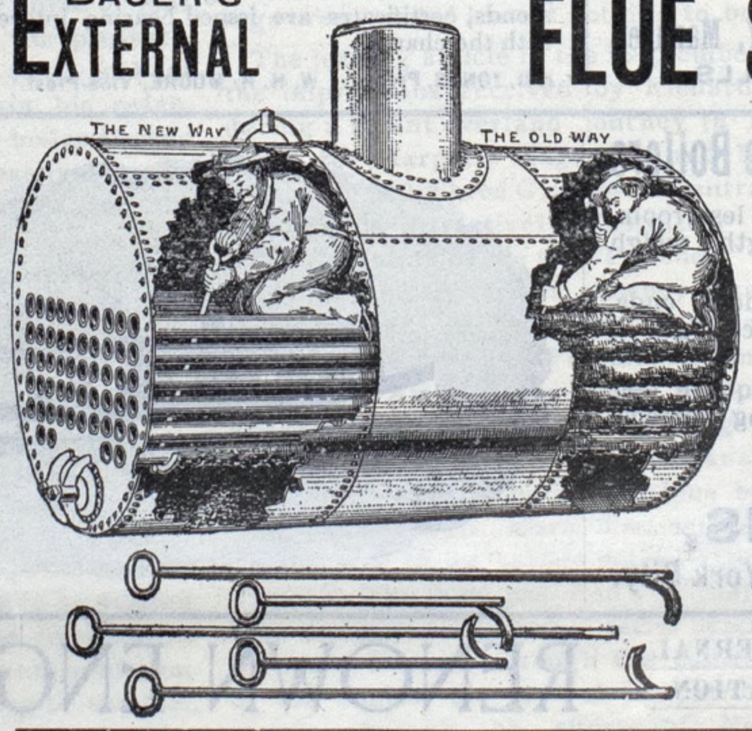
TUG MONARCH—Engine Compound, Cylinder 16 & 30 in. diameter, 30 in. Stroke, Steam Pressure allowed, 125 lbs.

TUG DELTA—Cylinder 20 by 22. Steam Pressure allowed, 105 lbs.

TUG OWEN—Cylinder 20 by 20, Steam Pressure allowed, 104 lbs.

CENTRIFUGAL PUMPS. SEVEN AND FOURTEEN INCH SUCTION.

BAUER'S EXTERNAL FLUE SCRAPERS.



THE only device that will effectually **remove Scale** and **Sediment** from Flues **without injury** to flues or boiler.

Made of tool steel, hardened, concaved and ground, producing two sharp edges, and can be worked either way.

A Set will last about 10 years.

Used in **more than 90 different cities** and give **universal satisfaction.**

A **Shell Scraper** and a **patented inside flue cleaner** given with each set.

Send **outside diameter** of your flues for a trial set.

E. RAYFIELD,

Sole Manufacturer,

373 Dearborn St., Chicago.

TREGURTHA SAFETY WATER-TUBE BOILERS

Single, Compound and Triple Expansion Engines.

STEAM YACHTS AND LAUNCHES.

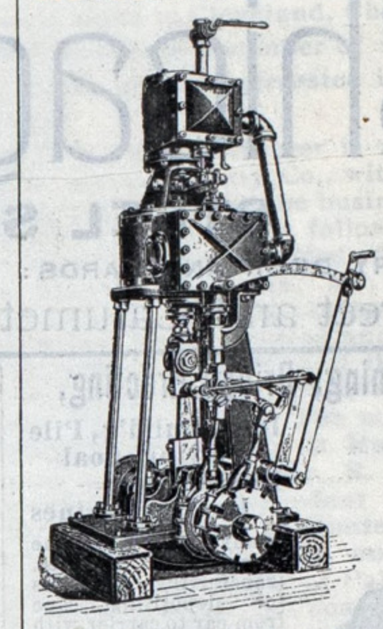
New and Second-Hand Launches in Stock.

MURRAY & TREGURTHA,

West First Street, foot of F Street, SOUTH BOSTON, MASS.

Send three 2c. stamps for Catalogue.

MARINE ENGINES



SINGLE AND COMPOUND.

5 TO 200 HORSE-POWER. These engines are high-class in workmanship and material and moderate in price. Send for cuts, description and prices.

Centrifugal Pumps

For raising coal, sand, &c. For dredging, wrecking and circulating. Write for catalogue.

MORRIS MACHINE WORKS,

Baldwinsville, N. Y.

HENION & HUBBELL, Agents,

61-69 North Jefferson St., Chicago, Ill.

Baker's Quadruple Grip Anchor

PATENTED.

AGENTS WANTED.

Watertown Brass & Mfg. Co.,

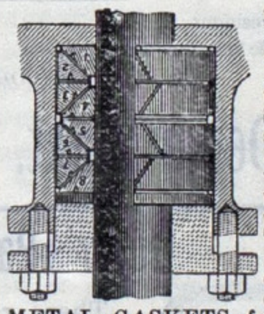
WATERTOWN, N. Y.

Send Stamp for Catalogue.

Mfrs. Yacht, Boat and Canoe Hardware.
Special Work a Specialty.
Boat Rails, Stanchions, Etc.

MENTION THIS PAPER.

Katzenstein Self-Acting Metal Packing



for Piston Rods, Valve Stems, Etc., of every description, for Steam Engines, Pumps, Etc. Adopted and in use by the principal Iron Works, Steamship Companies, Mills and Engine Builders, Electric Light and Power Plants within the last twelve years in this and foreign Countries. Also FLEXIBLE TUBULAR METALLIC PACKING for Slip-Joints on Steam Pipes and for Hydraulic Pressure. Also METAL GASKETS for all sizes and shapes of flanges. Double-Acting Balanced Water-tight Bulkhead Doors for Steamers. Also Agents for the McColl-Cumming Patent Liquid Rudder Brake.

L. KATZENSTEIN & CO., General Machinists, Brass Finishers and Engineers' Supplies, 357 West Street, New York, N.Y.

The Pennsylvania Brass Works,

ERIE, PA.

Automatic Piston or Mocking Bird Whistles. Special Whistles made to order. Penna. Steam Flue Cleaner. Water Gages, Penna. Gage Cocks, Air Cocks, Oil Cups, Brass and Bronze Castings a Specialty.

E. G. ASHLEY,

CHOICE FAMILY GROCERIES.

ALSO ALL KINDS OF

Fresh, Salt and Smoked Meats.

Vessel orders attended to day and night. Goods delivered by Steam Yacht "Maggie D."

36 & 38 Summit Street, TOLEDO, O

Linwood Park, Vermillion, O.

A delightful summer resort located on the south shore of Lake Erie. Excursion tickets via the Nickel Plate Road offered during the entire summer.

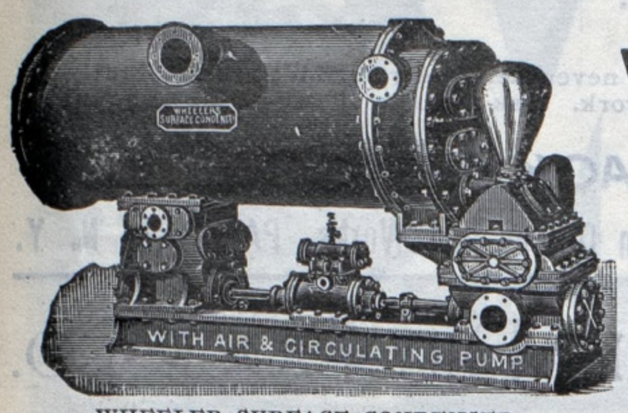
295-36

Wheeler Condenser & Engineering Co.,

39 & 41 CORTLANDT STREET, NEW YORK.

WHEELER'S IMPROVED SURFACE CONDENSERS

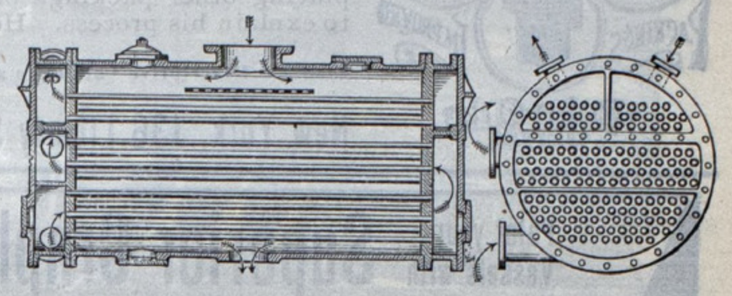
Mounted upon Combined Air and Circulating Pumps.



WHEELER SURFACE CONDENSER,
Mounted on Combined Air and Circulating Pumps.

Sole Proprietors and Manufacturers of the
WHEELER STANDARD SURFACE CONDENSER.
WHEELER ADMIRALTY SURFACE CONDENSER.
WHEELER LIGHT HALL SURFACE CONDENSER.
VOLZ PATENT COMBINED SURFACE CONDENSER AND FEED-WATER HEATER.
WHEELER FEED-WATER HEATER, AIR AND CIRCULATING PUMPS.
EDMISTON PATENT FEED WATER FILTER.

Send for Pamphlet, "Machinery for Small Boats, etc."



PATENT COMBINED SURFACE CONDENSER AND FEED-WATER HEATER.

P. M. CHURCH & CO.

SAULT STE. MARIE, MICH.

SHIP CHANDLERY, HARDWARE, PAINTS, OILS, AND ALL CLASSES OF

VESSEL SUPPLIES.

Coppersmith Shop in connection.

Corner Portage and Ashmun Sts.

TELEPHONES, - {OFFICE NO. 7. RESIDENCE No. 4.

Record Supplements - -

PHOTOGRAVURE AND PHOTOTYPE.

SIZE, 10 x 17 INCHES.

Whaleback Steamer Christopher Columbus,
Prominent Lake Marine Underwriters,
Steamer CITY of ALPENA,
STATE of OHIO—STATE of NEW YORK,
Steel Ship Builders,
Steamer ARTHUR ORR,
English-Built Steamer TURRETT,
Dry Dock Representatives,
Schooner JOHN FITZPATRICK.

Complete set of nine mailed to any address on receipt of 30c in stamps.

SMITH & SWAINSON, Cleveland, O.

D. & C.

The Detroit & Cleveland Steam Nav. Co.

Daily for Detroit, Bay City, Saginaw, Grand Rapids, and all Michigan points, at 10:00 P. M.

For Mackinac, Alpena, Petoskey, Soo, and all way ports, 4 trips per week.

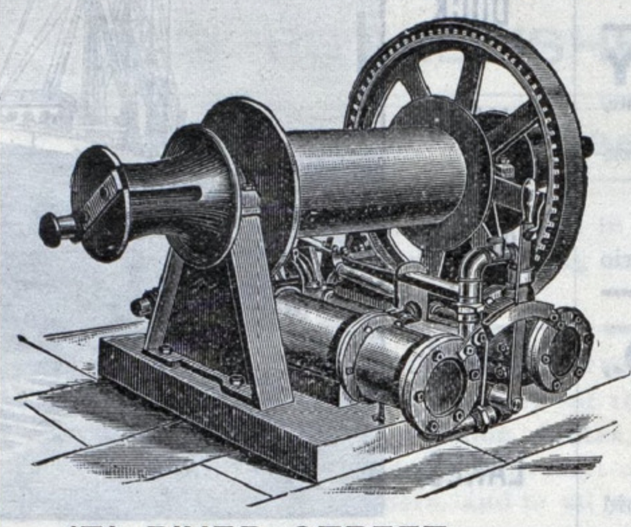
For Put-in Bay, Lakeside, Kelley's Islands, Toledo, Sandusky, Etc., Daily at 8:30 A.M., from June 15th to September 10th.

Arrangements now made with societies, etc., for their annual outings. Telephone 576.

A. A SCHANTZ, G. P. A., DETROIT, MICH.
D. C. McINTYRE, G. F & D. P. A., CLEVELAND, O.
J. C. MENGENSDORF, C. P. A.

T. R. TEARE. M. THOMAS.

RIVER MACHINE & BOILER WORKS



MARINE AND STATIONARY
ENGINES, BOILERS,
. . AND . .
DECK HOISTING ENGINES.

Starting, Stopping, Reversing and Lowering all done by working one Lever.

SOLE AGENTS FOR
St. John's Self Adjusting Cylinder Packing.

171 RIVER STREET, CLEVELAND, O.

THE CHASE MACHINE COMPANY.

MACHINISTS, ENGINEERS AND BLACKSMITHS.

MANUFACTURERS OF

Land & Marine Engines & Steam Pumps,

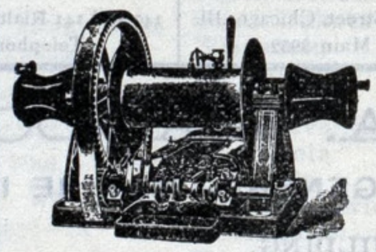
SOLE OWNERS AND MANUFACTURERS OF THE

CHASE AUTOMATIC FOG WHISTLE MACHINE.

IN USE ON NEARLY ALL LAKE STEAMERS.

Agents for ASBESTOS STEAM, BOILER AND PIPE COVERING.

Telephone 994. 111 Elm Street, CLEVELAND, O.



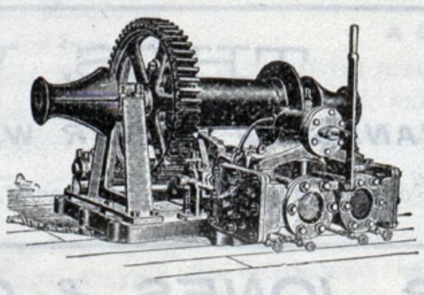
JACKSON & CHURCH,

BUILDER OF DUPLEX HOISTING AND DECK ENGINES.

Plain Finished and Automatic **ENGINES,** From Heavy Patterns at Moderate Prices.

Vertical, Horizontal, Marine and Locomotive **BOILERS** Strictly First-Class and Highest Test.

SEND FOR CIRCULAR AND PRICES. SAGINAW, MICH.



DECK AND DOCK HOISTS

Our Hoists will be found on the following boats: Tugs—Superior, Sumner, Sweepstakes, Winslow, J. K. Emmett, Acme, Mockingbird, Waldo Avery, Reliance, John Owen, Charlton, Howard, Duncan City, Chamberlain, Balize, Sampson, Westover, Gladiator, W. B. Castile, Home Rule, Robert Weideman, Boscobel and Peter Smith; Propellers—Metamora, Abercom, Penobscot, J. J. McWilliams, I. W. Stephenson, John W. Pauly; Barges—Jenness, Noquebay, Mantanee. Also in use by F. W. Wheeler & Co., W. B. City, Mich., Blood and Hart, Marine City, Mich, Michigan Salt Works, Marine City, Doty Bros,, Pile Drivers, Toronto, Canada.

MARINE IRON CO., - - Bay City, Mich.

Nautical Watch Chain.

SOLID GOLD. SHIP-SHAPE IN EVERY DETAIL.

Sheaves work, snatch block opens out and seizings are passed correctly.

MORGAN A. ROBERTSON,
26 John Street, New York.

Send for Descriptive Circular.

PROPOSALS.

OFFICE OF LIGHT-HOUSE ENGINEER, 9th District, Detroit, Mich., August 23, 1895. Proposals will be received at this office until 3 p. m. of Wednesday the 4th day of September, 1895, for the construction of a fog signal house on the north pier at Sheboygan, Wis. Plans, specifications, forms of proposal, and other information may be had on application to this office. The right is reserved to reject any or all bids, and to waive any defects. M. B. ADAMS, Major Corps of Engineers, U. S. A., Light-House Engineer. 35

U. S. ENGINEER OFFICE, Newport, R. I. August 13, 1895. Sealed proposals, in triplicate, for the purchase from the United States of 1 tug, 1 dredge, 1 water boat, 3 dump-scows, and 1 sand-pump complete with boiler, will be received here until 12 o'clock, noon, September 19, 1895, and then opened. Full information furnished on application. W. W. HARTS, 1st Lieut., Corps of Engineers, U. S. A. 34–37

U. S. ENGINEER OFFICE, 34 West Congress St., Detroit, Mich., August 7, 1895. Sealed proposals for furnishing all Labor, Materials and Appliances for (a) Removing Shoals from West Approach, St. Mary's Falls Canal; (b) Removing Shoal from East Approach, St. Mary's Falls Canal; (c) Removing Shoals off Six Mile Point, Hay Lake, and (d) Removing Shoal 29, Section 4, Ship Channel, etc., will be received here until 2 p. m., September 6, 1895, and then publicly opened. All information furnished on application. O. M. POE, Col., Engineers. 32–35

Cleveland & Buffalo Transit Company.

$2.50 CLEVELAND TO BUFFALO.

VIA "C. & B. LINE."

Magnificent side-wheel steel steamers,

"State of Ohio" and "State of New York"

DAILY TIME TABLE.
SUNDAY INCLUDED.

Lv. Cleveland,	6:00 p. m.	Lv. Buffalo,	6:30 p. m.
Ar. Buffalo,	7:30 a m.	Ar. Cleveland,	7:30 a. m.

CENTRAL STANDARD TIME.

Take the "C. & B. Line" steamers and enjoy a refreshing night's rest when enroute to **Buffalo, Niagara Falls, Toronto, New York, Boston, Albany, 1000 Islands**, or any Eastern or Canadian point.

Cheap Excursions Weekly to Niagara Falls.

Send 4 cents postage for tourist pamphlet.

W. F. HERMAN, Gen'l Pass. Agent. T. F. NEWMAN, Gen'l Manager.
CLEVELAND, O.

Now under construction for this Company the largest side-wheel steamer on the Great Lakes, unsurpassed for speed and elegance, will be ready to go into commission April, 1896.

Excursion to Mackinac via Valley Ry.

On Tuesday, Sept. 3d, the Valley Railway will run an excursion to Mackinac via Cleveland and D. & C. Palace Steamers, at rate of $5 for the round trip from any station between Valley Junction and South Park inclusive, thus giving its patrons an excellent opportunity for sport and sightseeing. 35

CRANDALL'S PATENT PACKINGS,

FOR STEAM, WATER AND AMMONIA.

Not having been subjected to the injurious chemical action of boiling oil, outlast all others, and never melt and gum. We are constantly displacing other packings on Lake and Ocean Steamers, and can guarantee our goods for marine work. Ask the man offering "the same thing" to explain his process. He boils his goods in oil.

Send for Descriptive Catalogue and Samples.

CRANDALL PACKING CO.

New York, 136 Liberty Street. Chicago, 51 S. Canal Street. Main Offices and Works, PALMYRA, N. Y.

Paint your Vessels with **Superior Graphite Paint**

NO BLISTERING, CRACKING OR SCALING.

Made especially for Stacks, Decks, Sides, Hulls and Water Compartments.
Strictly anti-rust, and most durable and economical.

DETROIT GRAPHITE MFG. CO. 542 River St., Detroit, Mich.

WHITTON & BATES, Agents, 503 Perry-Payne Building, Cleveland, O.

THE CUDDY-MULLEN COAL COMPANY

DEALERS IN COAL.

Docks at Government Pier, Whiskey Island, and Adjoining Globe Dry Dock.

All fully equipped with Revolving Derricks; also, Lighter Carrying Derrick, and One Hundred Two and One-Half Ton Buckets.

Main Office, 81 Perkins Building, East Side of Main Street Bridge.
Dock Office, 127 West River St., Cleveland, Ohio. Telephone No. 8.
Boats Coaled Day and Night. Docks at Amherstburg and Sandwich, Ontario

---

MULLEN-GATFIELD COAL CO.,

Dealers in the Celebrated

MANSFIELD AND YOUGHIOGHENY COALS.

Docks at SANDWICH, ONTARIO, opposite the Fort at Detroit, with chutes for rapid fueling. Elevated docks and derrick at AMHERSTBURG, ONTARIO.

O. W. SHIPMAN DOCKS.

AMHERSTBURG, ONT.

Four Chutes and Low Dock.

Massillon and Youghiogheny Hocking KOAL

Main Office, 90 Griswold St., DETROIT.

The "CINCINNATI" Automatic STEAM STEERING GEAR

Simple, Powerful Machine. Noiseless and Sure. Send for Circular.

FRONTIER IRON WORKS, Detroit, Mich.,
AGENTS FOR THE LAKES.

AMERICAN STEEL BARGE CO.

STEEL AND METAL SHIPS

OF ALL CLASSES BUILT ON SHORTEST POSSIBLE NOTICE AT OUR YARDS AT

WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300 FT. BOAT IN DOCK.

Plates and Material Always on Hand to Repair all kinds of Metal Ships in Shortest Time.

Best Quality of Oak in Stock for Repairing Wooden Vessels of all Classes.

SIZE OF DOCK

Length, Extreme	537 feet.	Entrance, Top	55 feet 9 in.
Breadth, Top	90 " 4 in.	Entrance, Bottom	50 "
Breadth, Bottom	52 "	Depth over Sills	18 "

LARGEST DRY DOCK ON THE LAKES.

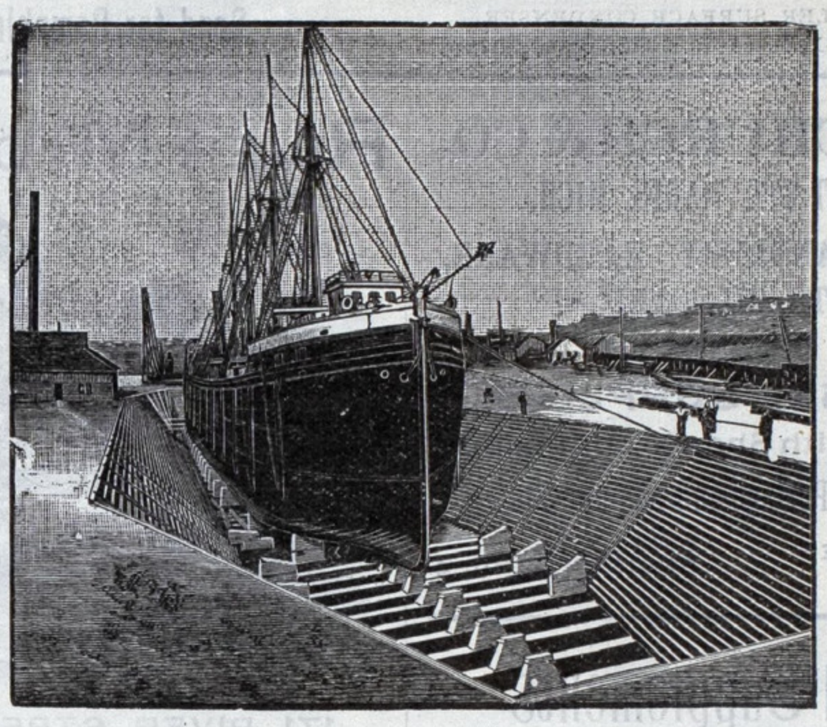
PRICES FOR REPAIRS AND DOCKING SAME AS AT LOWER LAKE PORTS.

SUPERIOR, WIS.

A NUMBER OF PROPELLER WHEELS IN STOCK AT DRY DOCK.

THE SHIP OWNERS DRY DOCK CO.

Largest DOCK YARD on the GREAT LAKES.



Capacity with Two Docks to Dock the Largest Ships on the Lakes.

GENERAL REPAIR WORK PROMPTLY ATTENDED TO.

Being equipped with Lucigen Lights we can do work at night as well as day.

TELEPHONE 1635. Foot of Weddell St., CLEVELAND, O.

ESTABLISHED 1857.

THOMAS MARKS & CO.,

Merchants, Forwarders and Ship Owners.

PORT ARTHUR, CANADA.

N. B.—Special attention given to chartering vessels.

Calvin Carr. G. C. Blair. John Mitchell.

CARR & BLAIR

VESSEL AND INSURANCE AGENTS,

Rooms 1 and 2. Tel. Main 869.
12 Sherman St. CHICAGO.

A. A. Parker. James W. Millen. B. W. Parker.

PARKER & MILLEN,

Vessel & Insurance Agents.

Iron Ore & Coal Cargoes a Specialty.
Rooms 3 & 4 15 Atwater St., West.
DETROIT, MICH.

C. F. Palmer. H. W. Cook. Capt. J. A. Calbick.

Palmer, Cook & Calbick,

Vessel Agents and Underwriters,

No. 6 Sherman Street, Chicago, Ill.
Telephone, Main 3952

J. G. Keith. D. Sullivan.

J. G. KEITH & CO.

VESSEL AND INSURANCE AGENTS,

140 and 141 Rialto Bldg. CHICAGO.
Telephone No. 3658.

JOHN PRINDIVILLE,

VESSEL AND INSURANCE AGENT,

12 Sherman Street,
Telephone Main 129. CHICAGO.

C. A. MACDONALD & CO.,

GENERAL MARINE INSURANCE AGENTS.

RIALTO BUILDING, CHICAGO, ILL.

THOS. WILSON,

MANAGING OWNER WILSON'S TRANSIT LINE,

General Forwarder, Freight and Vessel Agent. CLEVELAND, O.

C. R. JONES & CO., VESSEL AGENTS

FIRE AND MARINE INSURANCE.

Nos. 501, 502 and 503 Perry-Payne Bldg., CLEVELAND, O.

JOHN MITCHELL. JOHN F. WEDOW. ALFRED MITCHELL.

MITCHELL & CO., Vessel and Insurance Agents,

Office Telephone, 767.
Residence John Mitchell, 3506.

508-509-510 Perry-Payne Building,
CLEVELAND, O.

BEESON'S DIRECTORY for 1895 is now ready, Send orders to

Smith & Swainson, Cleveland, O.

PRICE $5.00; INCLUDING SUBSCRIPTION TO THE MARINE RECORD $6.00.